Stories of what is to come: the future in film and television 1959-1989

Thesis

STORIES OF WHAT IS TO COME: THE FUTURE IN FILM AND TELEVISION 1959-1989

FRANCES JANE BONNER B.A. (Hons), M.A. (Tas.)

Thesis Submitted for the Degree of Doctor of Philosophy
October 1991
Sociology

THE OPEN UNIVERSITY

Date of submission: 8 November 1991
Date of award: 23 December 1991

ABSTRACT

The thesis examines films, television programmes and associated newspaper articles from the period 1959-1989 to discover how the future has been talked about in popular discourses. It considers both fiction and non-fiction in the areas of defence, nuclear issues, ecological catastrophes, space and artificial beings. It is particularly concerned to contrast scientific discourse with science fiction to discover how the distinction between them is maintained when the temporal setting is the future and whatever is asserted or depicted is characterised by not yet having happened.

The thesis begins by investigating the discursive struggle over the naming of the US military policy both Star Wars and SDI. It uses the concept of professional language and Michel Foucault's arguments about regimes of truth to explain the status of the more scientific term, while the popularity and success of the film are advanced as reasons for the appeal of the popular title. The following chapters attempt to discover whether this example is charcteristic or an oddity.

The examination of the presentation of potential eco-catastrophes, particularly in TV science programmes finds minimal variation and piecemeal presentation being used in an attempt to separate scientific discourse from SF and emphasise certainty. In looking at nuclear discourse the competing claims of the defence establishment and those people making nuclear war dramas for TV to speak with authority about the future are investigated to try to understand why there is such a paucity of depictions of the nuclear future.

It is discovered that talking about the future in space shifted with economic discourse became more dominant than scientific, but that this did not apply to those fictions, like *Star Trek*, which were constrained by precursors from the 1960s. These are the major instances of an optimistic future. In considering the case of artificial beings, changes are found within the fictions as certain categories of being become scientifically more feasible. An analogy with colonial discourse and the concept 'hybridity' proves particularly useful.

The thesis concludes by finding hybrids of fiction and non-fiction, scientific and science fictional discourses most characteristic of popular discourses about the future.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

I want to record my deep gratitude to my supervisor, Stuart Hall, for his belief in the project from the beginning and his assistance through the innumerable difficulties I encountered.

I also want to acknowledge the support I received when things became especially difficult from my friends among the post-graduate students at the Open University, from the U207 Issues in Women's Studies Course Team and from my colleagues in Media and Cultural Studies at Liverpool Polytechnic.

INTRODUCTION

This study examines popular discourses about the future, asking how it is that the future is talked about in them. The discourses are tracked across several media, but mainly in a selection of English language film and television programmes about the future from the thirty-year period 1959-1989. Most of these films and TV programmes are straightforwardly fictional and thus, because it is the most common fictional genre perceived as talking about the future, science fiction (SF). This is not, however, a study of SF, but of popular discourses about the future, it therefore also considers TV programmes like *Tomorrow's World* which claim to be 'scientific'.

The two types of material are ostensibly very different, although demonstrating that difference, especially when they talk about the future, is not necessarily easy. The distinction between them is generally held to lie in their abilities to make claims to speak the 'truth' - science may while SF may not. 'Scientific' assertions about the future retain their character by adherence to 'scientific' laws projected forward or extrapolated. Because whatever is asserted or depicted when the temporal setting is the future is characterised by **not yet** having happened, such projections must have a hypothetical component which, however disguised, immediately provides a space for the overtly fictional to intrude.

It is perhaps necessary to note how the distinction between the fictional and the non-fictional, referred to throughout this study, is being perceived. I am not suggesting that there is any absolute, extra-discursive foundation for such a distinction. Instead I am operating with an extant distinction - within the givens of scientific discourse, scientific statements are non-fictional; on TV, science programmes are (generally) non-fiction ones; SF has its fictionality inscribed in its name, yet this is modified by 'science'.

The paradox of the scientific which even on its own terms cannot but have an element of the fictional 'what-if' when it talks about the future is thus mirrored by SF itself. More detailed attention to the genre is given later, but a brief indication of how the term SF is being used here is provided by Patrick Parrinder's gloss of Darko Suvin's definition of SF as the "literature of cognitive estrangement":

> "[i]t is 'estranged' by the introduction of some novelty which transforms the author's empirical world, and 'cognitive' by virtue of its affiliation

to science and rationality."[1]

Thus this paradox is inscribed in the genre definition, as the science and rationality which should bring fictions closer to the empirical world are combined with the estrangement moving in the other direction. A principal concern of this study is with how, despite the shifting relationship between them, a distinction between fiction and non-fiction is both constructed and sustained in discussions about the future.

I am using the term 'science' to refer to a 'discourse' in Michel Foucault's sense, as a group of statements belonging to a particular discursive formation, as the 'fictional' is also a discourse. Foucault asserts that 'science' has a privileged position within the current 'regime of truth': that 'truth' is discursively produced and regulated, and historically contingent; and that currently scientific discourse and the institutions producing it are central to the production of 'truth'.[2] Since 'truth' is thus always a product of power, indeed produced within relations of power, it is inescapably political. As a consequence, by privileging the discourse of science (which here includes technology), I am inevitably concerned with politics.

Although this study is traversed by an investigation of the fictional and the non-fictional, there is no intention of dealing with relations between the real and the fictional. Attention is focussed instead on two discursive regimes whose very different truth claims are discursively constructed. The study argues that the categories repeatedly breach each other's boundaries and that this mixing is tolerated on only one side. SF, which calls on the 'scientific' in its name and definition, is enhanced by some of its imaginative 'novelties' becoming scientifically practical; science, on the other hand, must deny those of its past projections that have proved ill-founded, precisely because they appear no different from SF. The denial is achieved mainly by ignoring their having been made, but also by stressing the scientific achievements that now enable past 'mistakes' to be avoided and by belittling past predictions as 'quaint'. The responses in both discourses are evidence of a discursive contestation which is heightened when the discursive field is the future.

---

[1] Patrick Parrinder: *Science Fiction: Its Criticism and Teaching*, London, Methuen, 1980. p21. He is referring to Darko Suvin: "On what is and is not an SF narration", *Science Fiction Studies*, Part 1, March 1978, p50

[2] Michel Foucault: *Power/Knowledge: Selected Interviews and other writings* (ed. Colin Gordon), Brighton, Harvester, 1980. pp131-2

The adoption of the title of a science fiction/fantasy film, 'Star Wars', as the title of a piece of American military strategy was an apparently astonishing example of the deliberate and sustained transgression of the boundaries between SF (film) and science. The study began as an investigation of how and why the transgression occurred and then broadened out to consider whether this was a special case or characteristic of popular discourse about the future in general. The decision to concentrate on film and TV was taken in the wake of Star Wars as part of this consideration of its exceptional or typical status.

Despite the specific attention to SF, this is not a study of genre. In addition to the inclusion of non-fictional discourses, only part of the range of SF film and TV is considered. Minimal attention is paid, for example, to fictions about aliens and time travel. They are not excluded altogether, but usually need to occur in tandem with some more scientifically structured (which does not mean scientifically **credible**) phenomenon, as is the case in *Star Trek.* Furthermore some generic hybrids, like the SF/horror films *Alien* and its sequel *Aliens* are also included because they do use scientific premises to talk about the future. Nonetheless this study does recognise at least one of the shared assumptions of writing on the SF genre noted by Annette Kuhn:

> "that science fiction films operate in a network of meanings (and indeed activities) which extends beyond the films themselves."[3]

This may seem to apply much more widely, but it is intensified for SF as becomes most apparent in Chapter Five, which deals with the special case of *Star Trek.*

The focus of this study is not on the specific media of film and TV, but on them as the most popular and pervasive forms in and through which the future is talked about. 'Through' here refers to the role of images and terms drawn from SF film or TV but removed from their immediate filmic or televisual settings, like 'Star Wars' itself, as part of popular discourse about the future. Such discussion is charted here particularly in non-fictional TV programmes, but also at times in newspapers. The use of newspaper material is secondary to film and TV, but was important in tracking the political effects of the

[3]Annette Kuhn: "Introduction: Cultural Theory and Science Fiction Cinema" in Annette Kuhn (ed): *Alien Zone: Cultural Theory and Contemporary Science Fiction Cinema,* London, Verso, 1990. p7

discursive stuggles over talking about the future, especially the interdiscursive adoption of the term 'Star Wars' (which occurred before my study began). The Star Wars instance provides an indication of the crossing of media as well as discursive boundaries; it begins with a film, terms from which are taken up in popular political discourse, reported in the news in the press and on radio and TV. Clips from the film as well as newly generated pieces of video animation are used to explain the operation of the proposal on TV news and non-fiction programmes; stills from both are used in the print media. The film and its sequels are screened on TV and released on video. All of this is part of talking about the future through the use of the film title *Star Wars*.

Reviews of films and TV programmes and associated promotional material are occasionally used more generally to provide some idea of the extra-textual context within which texts were received. TV and film reviews are part of what Tony Bennett has called "the superintendence of popular reading" which he explains as

> "hermeneutic systems which pin down the meaning of popular texts in particular ways, fixing ideological parameters within which they are to be read."[4]

'Fixing' and 'pinning down' imply perhaps too great a determinacy; his later term 'reading triggers' seems preferable. Review material may act, insofar as it is attended to, to structure reading practices, by, for example, 'cueing' the reader to the truth claims of the particular text. It may also indicate ways in which past readings may have been inflected. Generic descriptions will be influential both on viewers' programme choices and on their expectations of what they are to see. Reviews, TV schedule data, information from previous episodes or films in a series, promotional material and magazine interviews with the stars all act to situate viewers before they see the film or programme and intervene in the reading of the text itself.

Mike Poole has pointed out how promoting a TV programme by making it available for previews or by referring to it in reviews is part of the process of "shaping the perception of its importance".[5] Programmes noticed appear more important than those ignored, and genres frequently reviewed (TV documentaries or plays, for example) given at least an illusion of importance

[4]Tony Bennett: "Texts, Readers, Reading Formations", *Literature and History* 9(2), Autumn 1983, pp214-227. p225

[5]Mike Poole: "The Cult of the Generalist: British Television Criticism 1936-1983", *Screen*, 25(2), March-April 1984, pp41-61. p50

greater than those, like SF, rarely or perfunctorily referred to. Little has been written about audience use of reviews or criticism, but the high popularity of television columns in newspaper 'page traffic surveys' is occasionally noted.[6] Reviews cannot be discounted.

DEFINING SF

Defining and clarifying SF is a frequent concern of critics. As Patrick Parrinder writes

> "[d]efinitions of science fiction are not so much a series of logical approximations to an elusive ideal, as a small parasitic sub-genre in themselves."[7]

The description of SF developed by Vivian Sobchack for her examination of American SF films since 1950 is more useful than most as it emphasises the interaction of technology and social relations.

> "SF has always taken as its distinctive generic task the cognitive mapping and poetic figuration of social relations as they are constituted and changed by new technological modes of 'being-in-the-world'. "[8]

The reference to cognition here is an acknowledgement of the influence of Darko Suvin, the principal SF theorist whose definition of SF as the "literature of cognitive estrangement' has been quoted above.

Sobchack's reference to newness is also an acknowledgement of Suvin's influence, for while he finds cognition and estrangement prerequisites for SF, he places the 'novum' at the centre of the specificity of the genre and the distinctiveness of its use of estrangement. A 'novum' is a new thing, a novelty, an invention of the SF author. Suvin uses it as an elaboration of the idea of the SF 'prop'. For Suvin the novum can be more than the physical thing, like a faster-than-light drive, that the word 'prop' implies; it can indeed

---

[6] See e.g. Chris Dunkley: "Langham Diary", *The Listener*, V.110, No.2834, 10 November 1983, p24

[7] Patrick Parrinder: *Science Fiction*, p2

[8] Vivian Sobchack: *Screening Space* (Second Enlarged Edition), New York, Ungar, 1987. p224-5

be the new form of social relations that Sobchack's definition involves. He also requires it to be more than incidental, saying

> "SF is distinguished by the narrative dominance or hegemony of a fictional 'novum' (novelty, innovation) validated by cognitive logic."[9]

The functioning of the novum also characterizes the particular functioning of estrangement in SF. Suvin describes estrangement as an oscillation from the author's and the reader's 'norm of reality' to the narrative novelties and back from them to this 'reality' which is regarded anew in the light of what the narrative has suggested.

> "However its second pole is in SF a narrative reality sufficiently autonomous and intransitive to be explored at length as to its own properties and the human relationships it implies."[10]

In his recent writings on SF, Suvin has further specified SF by incorporating into his definition the 'absent paradigm',[11] an idea initially developed by Marc Angenot. Angenot terms SF a 'conjectural' genre, not only because of its method of world creating, but also because of the mode of reading required. While syntagmatically the rules governing its reading are no different from those used with other genres, they interact with "delusive missing paradigms".[12] The work of reading the SF text involves the conjectural creation, or the assumption of the existence of, the other members of the paradigm triggered by particular cues, which may include fictive words, non-linguistic semiotic configurations or fragments of some organizing system.[13] In adopting Angenot's hypothesis, Suvin seems to have modified his novum, which now seems to be co-existent with the 'world-creating proposition' - his term for the syntagmatically present cues to the absent paradigm.[14]

---

[9]Darko Suvin: *Metamorphoses of Science Fiction*, New Haven and London, Yale University Press, 1979. p63

[10]Ibid., p71

[11]Darko Suvin: *Positions and Presuppositions in Science Fiction*, London, MacMillan, 1988. p 204-5

[12]Marc Angenot: "The Absent Paradigm: An Introduction to the Semiotics of Science Fiction", *Science Fiction Studies*, 6(1), 1979, pp9-19. p10

[13]Ibid., p16

The novum is now commonly connected to another characteristic of SF, a particular concern with temporality. Suvin explains the shift from early and proto-SF, where the novum involved spatial displacement, to the more contemporary displacement in time (i.e. most commonly the future), as being due both to convenience (**plausible** other spaces now being rare), and

> "the strong tendency toward temporal extrapolation inherent in life based on a capitalist economy,with its salaries, profits and progressive ideals always expected in a future clock-time."[15]

This has become more than a little debatable. Suvin however rejects the idea that SF is itself extrapolation, arguing that it works through analogy, usually with the present.

Yet there is no necessity for SF to have a future setting. In being concerned here only with that SF which is set in the future, I am (wittingly) limiting the field. It can easily be set in the present and, with only a little more difficulty, in the past. The temporalities of SF narratives can be quite complex. Christine Brooke-Rose sees SF engaging in an appeal to memory - and doing so overtly. Of SF she says that this refers not only to the past of the characters, but also to the

> "past of the world as seen from the future and for [the] future of the undertaking."[16]

In a related vein, Fredric Jameson has argued that under the current stage of capitalism, it is so difficult to represent the present that strategies of indirection are required to do so, and that SF is one of these strategies. Not only does SF not represent the future, he says, but

> "its multiple mock futures serve the quite different function of transforming our own present into the determinate past of something yet to come."[17]

---

[14]Suvin: *Positions*, p205

[15]Ibid., p73

[16]Christine Brooke-Rose: *A Rhetoric of the Unreal*, Cambridge, Cambridge University Press, 1981. p99

[17]Fredric Jameson: "Progress Versus Utopia: or, Can We Imagine the Future?", *Science Fiction Studies*, 9(2), July 1982, pp147-158. p152

This temporal phenomenon, that he later describes as "a trope of the future anterior"[18] echoes and extends Brooke-Rose's comment.

METHODOLOGY

The period chosen was 1959 to 1989. There were several reasons for this apart from its providing a large number of examples. The future was talked about in many ways and across many discourses. Certain events centred in the period, particularly space flight and nuclear fear, raised the possibility of changes in the way the future would be talked about. The entire span of manned space flight (since 1961) could be examined together with two years before it began. A wide range of films and television programmes about the aftermath of a nuclear war could also be considered. Finally, choosing 1959-1989 made it possible to investigate the development and influence of some televised SF programmes, particularly *Star Trek*, which have continued in various forms from the 60s to the present day.

However, because the concern was with public discourse, a second period was mapped onto the first. This was the period of the research itself - from October 1986 to December 1989. There was no attempt to examine every English-language film or TV programme dealing with the future from 1959 to 1989, instead I dealt with films and TV programmes from this period which were screened or transmitted in or around London in the research period. For the purposes of this research, the time of transmission or screening is more important than the time of production. This is an acknowledgement that some material (but not all) is screened long after its production and together with material of more recent origin forms part of the public discourses about the future. The proliferation of videos of films and TV programmes has increased the amount of past material that feeds into present discourses. Although it might have been expected that this would increase the proportion of film available, in contrast to TV, one of the more surprising discoveries consequent on the principal selection criterion was how much of the older TV material it was possible to see. In addition to the expected repeats and videos, there were celebratory screenings in cinemas and old programmes framed for rebroadcast.

The films referred to are those publicly screened, readily available on videotape or transmitted on broadcast TV; TV programmes were telecast on

[18]Fredric Jameson: "Nostalgia for the Present", *South Atlantic Quarterly*, 88(2), Spring 1989, pp517-537. p524

BBC, ITV or Channel 4 or publically available on video. The main exceptions are public screenings of archival TV material. Occasionally, films or TV programmes not able to be seen again during the research period are referred to, when they are inescapably relevant to material that was available (the nuclear dramas are the principal instance of this). This is particularly the case when the absence of this material from public discourse appears noteworthy.

Although the texts are still ultimately the choice of a single viewer (the researcher), and it was not possible to be sure precisely what proportion of the total amount of available relevant material was examined, it is my impression that they comprise a substantial quantity of the texts in the public domain. Listing magazines were checked weekly and films set in the future viewed at least once. TV schedules were similarly checked and programmes indicating by their description a concern with the future were viewed. Because material now enters the public domain not merely through broadcast television and public cinema screenings, but also through rented and purchased videos, high profile video titles were also included. This resulted in a very substantial body of material which included every *Tomorrow's World* programme broadcast for three years, five *Star Trek* films as well as many repeated, rented or purchased episodes of the TV series and a large number of one-off or short-serial TV dramas. There was a very conscious decision to deal with a wide range of material in order to determine whether there were discernible patterns across the most pervasive visual media, both in fiction and non-fiction.

It was hoped that the focus on material in the public domain would reduce the impact of one of the problems of diachronic studies. It is not possible to read a thirty-year-old text as it might have been read at the time of its production, not even as one would oneself have done at that time. By reading all the texts quite overtly in the same time period, and having ones chosen by various schedulers, for what ever reason, as relevant to be (re-) screened in the late 80s, a *de facto* limitation (of historical re-contextualization) is acknowledged.

Another selection criterion is generically based. As far as possible, the choice of fictional texts from the last thirty years publicly available in the last three, has excluded fantasy and horror. Despite the imprecision of the generic boundaries between these and SF, such selection has not usually proved too difficult, simply because fantasy and horror are rarely set in the future. As was indicated above, the situation is complicated by generic mixes like the horror-

SF *Alien* or the SF-fantasy *Star Wars* (both of which are examined).

Although I do not deny the considerable differences between the media of film and TV, these differences are not often of great importance here, not least because so much film is consumed through TV either broadcast or on video. For most of the study, it is the content of the films and programmes that is most important, although when attention is paid to the impact of special effects, the medium is of greater relevance. Even here, however, the clarity of the distinction between electronic and cinematographic generation is blurred.

ORGANIZATION

The study has six principal chapters. It is ordered so that those chapters concerned with areas where scientific discourse appears dominant, the ones dealing with Star Wars/SDI, ecological catastrophe and nuclear war are first. I argue that these are also the ones in which the future appears temporally closer, possibly precisely because of the tendency of scientific discourse to talk about the future through cautious extrapolation into the 'foreseeable' future. The chapters placed after these examine outer space and artificial beings, classic subjects for SF, where the fictional element is more obvious and the future generally seems further away.

The first chapter looks at the example that provoked the study as a whole - the naming of a piece of US military policy after the science fantasy film *Star Wars*. Its focus is on the complex transactions between the the scientific and the overtly fictional discourses within the political arena. It examines how the naming came about and the discursive struggle between 'Star Wars', the popular name, and SDI, the more 'scientific' name. The concept of professional language and Michel Foucault's arguments about regimes of truth are used to explain the power of the more scientific term, while the popularity and success of the film are advanced as reasons for the appeal of the popular title.

The second chapter attempts to see whether the Star Wars/SDI instance was an oddity and examines formally designated TV science programmes to determine how the discourse of science is used within the programmes as a basis for claims to speak 'truthfully' about the future. The particular future examined is that envisaged as the result of ecological catastrophes and a case study is presented of a *Tomorrow's World* programme on the Greenhouse Effect. I argue that the demands of a popular visual medium

mean that the use of imaginative constructs and metaphor in science, which are usually invisible become visible and rather obvious. In an attempt to compensate for this lack of apparent scientific purity, the certainty of scientific knowledge is stressed. This however places severe limits on what can be said, so non-scientific and overtly fictional visions of the future have a greater ability to present a comprehensive picture of the catastrophic future.

The third chapter deals with nuclear discourse, thus siting the Star Wars/SDI case within a wider framework. Again it examines the struggles and the competing claims to speak with authority about the future between the defence establishment and those people making TV dramas about the consequences of nuclear war. Its central concern is to explain why there is such a paucity of depictions of the nuclear future. Two major explanations are examined: that there are politically-based restrictions placed on the area; and that the topic itself resists depiction, primarily through being sublime. The chapter notes the development of a convention of following nuclear dramas with discussion of the issues by various 'experts' as a device to bridge the gap between the competing claims and to reassert the status of scientists, technostrategists and politicians as 'truth-speakers'.

Chapter four deals with space. It is discovered that there have been several shifts and convergences during the research period in both the space-set SF fictions and actual space activity. The most important of the shifts appears to have occurred after the successful Moon landings when there was no immediate continuation on to Mars. During this period, the primacy of science in speaking about the future in space was replaced, as economic discourse became most powerful. An examination of both fictional and non-fictional portrayals of the future in space reveals the growing importance of economic concerns. It is suggested that this is because the agenda for space exploration had long been set by SF and when science was no longer able to deliver on the promises of SF, some other discourse was required to 'explain' the failure.

The fifth chapter deals with the special case of the TV and film series *Star Trek*. Unlike the majority of the space fictions considered in the previous chapter, the *Star Trek* fictions are not constrained by economic issues and, unlike almost all other future fictions examined, they present an optimistic view of the future. I argue that this is because *Star Trek* presents a nostalgic future, constrained by its 60's TV genesis. The dominant discourse here is a moral-ideological one, and the interrelationship of *Star Trek* and NASA provides an opportunity further to explore the relevance of the concept 'hyperreality',

briefly dealt with in chapter four.

The sixth chapter considers the case of artificial beings - robots, intelligent computers, androids and cyborgs. I use a Greimasian approach to explore the relationships between the categories 'human' and 'machine' which generate artificial beings. The changes within the fictions as certain categories of being become scientifically more feasible are explored. The characteristics of artificial humans are revealed to be analogous to those of the subjects of colonial discourse and the concept 'hybridity' proves particularly useful. Again the power of scientific discourse is limited by the prevalence of fiction and non-fictional coverage of related areas is shown to be low key and involve denial.

In the conclusion, the final examination of the role of scientific discourse as speaking most 'truthfully' finds this much modified by other discourses when the temporal setting is the future. Some techniques to manage the threat of fictionality are outlined. Material from the six separate areas is brought together to see how the personal mode, while not directly deployed in film and TV programmes about the future, is nonetheless detectable as an alternative approach, primarily telling stories about death and masculinist (re-) production. I also note the dominance of a pessimistic tone in talking about the future. 'Hybridity', which proved so explanatory for artificial beings is announced as more widely characteristic, as fiction and non-fiction, scientific and non-scientific discourses prove inevitably intermingled.

1: STAR WARS/STRATEGIC DEFENSE INITIATIVE

The simple central question of this thesis is 'how is the future talked about?' The focus on film and television involves examining both how it is talked about **in** these media and also how it is talked about **through** them. In effect this is a matter of intertextual presentation, where a particular vision of the future is shown in a specific film or television programme, and extratextual deployment. For this latter, the question is how do we use film and television in talking about the future?

The first area considered is the very peculiar instance of talking about the future through film that drew me to the subject - the use of the title of the film *Star Wars*[1] to name a piece of American military policy. Oddities of this slippage between two normally distinct discourses which will be investigated include: using the film's title while apparently ignoring its content; taking from fiction to apply to the non-fictional; and using SF without its usual derogatory connotations. The adoption of the term was so recent, it was possible to trace substantially how it had occurred. It was necessary however to do this tracing through newspapers since they provide the permanent record of the public events. The televisual evidence is no longer available.

Military policy may not initially seem to be a major way in which the future is talked about, but this is indeed what it is. It involves projections of, and extrapolations from, presently perceived threats or territorial ambitions. Scenarios are detailed around possible future consequences of these which involve both plans for the deployment of extant military technology and the selection of particular proposals for the development, or indeed the invention, of pertinent military hardware. At its most straightforward, the Star Wars/Strategic Defense Initiative programme envisaged a future in which the US would be attacked by nuclear missiles (most probably from the Soviet Union) but would be able to remain secure behind a protective shield.

The film *Star Wars* was released with very heavy promotion in 1977 and rapidly became the most successful film ever made in terms of non-inflation adjusted box office rentals. It lost this position to *ET: The Extraterrestrial* in

[1] Where 'Star Wars' is simply the title of the film, it appears in italics, where it is the title of the projected military programme, it does not, nor does it when it seems an amalgam of the two. Style and capitalisation inside quotations from other sources, are as they were in the source.

1982, but still holds the second position, with its two sequels, *The Empire Strikes Back* and *Return of the Jedi* holding fifth and third places respectively[2]. Since *Star Wars* is also the series title[3], the first aspect of the term which should be noted is its association with the potent combination of financial success and pleasure.

The series is set in space but in a mythic past. Because this temporal setting is only referred to in the printed prologue and a space setting in all other SF film indicates the future, the 'pastness' of *Star Wars* has never been accorded much importance by those talking about it and, in a collapsing of temporal referents, it is far more likely to be referred to as talking about the future. In the first film the family of the young hero, Luke Skywalker, is destroyed on the orders of the villian Darth Vader. Luke then comes under the tutelage of Obi-Wan Kenobi, an adept of a mystical martial art, and joins with him in a rebellion against the tyrannical Evil Empire which Vader serves. Much of the weaponry in the film, both hand-held and projected, is represented by beams of light. Although the term 'laser' is never used in the film, current popular scientific understanding allows these weapons to be referred to extra-textually as 'laser weapons'. At the conclusion Luke joins in an attack on the Death Star, the Empire's supposedly impregnable, 'laser'-armed, space battle station. The mystical martial order believe in the power of 'the Force' and Luke calls on this when, at the end of the film, he turns off the targetting computer in his fighter ship to rely on greater powers/instinct in dropping the bomb which sets off a nuclear explosion and destroys the Death Star.

The film's catch phrase, "May the Force be with You" (the blessing of the adepts), rapidly became adopted as mediated common speech - in newpaper headlines, teenage magazines, and TV comedy programmes - and was used by some politicians, including Ronald Reagan, to give a light, common or folksy touch to their various addresses. Reagan also used the term 'Evil Empire' to refer to the Soviet Union in a particularly widely publicized speech.

[2]Details from "Top 100 All-time Rental Champions", *Variety*, 24 January 1990, p46. (*Batman* was fourth.) The figures are for US-Canadian rentals only. Despite this, they are generally referred to as the best available.

[3]When *Star Wars* was first released in 1977, it had no formal sub-title - the first words on the screen after the title were "The Story Begins . . .", and it was sometimes referred to as this to differentiate it from the series title. In 1982, it was formally given a sub-title, "A New Hope". It is hardly ever referred to as this. Little information on the name change is available. It was registered in the *British Board of Film Censors Monthly List* for April 1982.

The language of the film, then, moved very swiftly from the text itself and associated entertainment material into the political arena. More, however, was to come. The release of the second film in 1980 and anticipatory promotion of the third to be released in 1983, ensured that these references remained current throughout the early 80s.

Use of the film in references to laser weapons can be found quite soon after the film's massive popularity became evident. A particularly interesting example is given by Peter Moss in an analysis of some 1980 issues of *SSAM* - a US Department of Defense tabloid issued to the military for both information and entertainment. He examines an article on laser weaponry which depends heavily on *Star Wars* to make complex weapons comprehensible. One of the article's illustrations is of Darth Vader and Obi-Wan Kenobi fighting; the overall title is "Laser - May the Force be with you" and the concluding paragraph tells the soldier-reader,

> "[o]nce you marvelled at fictional space age heroes and their Amazing Ray Guns. Soon it may be turnabout - with Buck [Rogers], [Captain] Kirk and Luke [Skywalker] smacking their lips at YOUR tech manuals".[4]

Popular accessible imagery is being used here to convey information about the potential of directed energy weapons. This is an example of the use of SF to explain phenomena, characteristically used in speaking to the less informed.

An article published in July 1981 entitled "*Star Wars* Weapons May Come True" also does this, pointing out that

> "a treaty between Washington and Moscow could defuse the potential for *Star Wars*".[5]

It describes some space-based weaponry and continues

> " . . . military experts note that the Soviet Union and the US are already taking the first steps

[4]Peter Moss: "Rhetoric of Defense in the United States: Language, Myth and Ideology" in Paul Chilton (ed.): *Language and the Nuclear Arms Debate*, London, Frances Pinter, 1985. p54. [Original emphasis.]

[5]Paul Recer: "*Star Wars* Weapons May Come True", *US News and World Report*, XCI(40), 27 July 1981, pp46-48. p46

toward this star-wars future".[6]

The plan, which involved substantial dependence on lasers, envisaged 'space-warriors' orbiting the globe and patrolling a line between the Earth and the Moon. The journal obviously saw SF, not just *Star Wars*, as a prime means for conveying this kind of information to its readers, because a boxed insert on the same page described magnetic railguns as the manifestation of "Jules Verne's most exotic vision". Again SF is functioning to provide convertible images to explain the scientific components of a proposal to a popular audience.

Anti-satellite devices and other aspects of space warfare came under examination in Congress in 1983. On 3 February, Senator Paul Tsongas had introduced a resolution calling for the US

> "to begin negotiations with the Soviets for a complete ban on space weaponry . . [and] . . for a UN effort to extend the 1967 Outer Space Treaty."[7]

In doing so, he noted

> "[a]ready underway is the next, still more costly, step in the space war. Weapons to destroy ballistic missiles, including Star Wars style laser and particle beam weapons. Such systems are not just science fiction; they are now being developed both in this country and the Soviet Union, for deployment before the end of the century."[8]

This is a rather neutral, but still explanatory, use of the film metaphor, but one that acknowledges the distinction between the discourses of science fiction and politico-military ones in setting up the opposition between science fiction and 'actual' developments. Many more examples of this precise distinction, which I will refer to as the 'SF disclaimer', will be given in the course of this study.

On 23 March 1983, President Reagan gave a televised speech to the nation on Military Spending and a New Defense. This has become known as

---

[6]Ibid..

[7]Senator Larry Pressler: *Star Wars: The Strategic Defense Initiative in Congress*, New York, Praeger, 1986. p11

[8]Ibid., p12

the Star Wars speech. What is surprising is not so much that does it not contain that term, but that it does not contain any reference to space. In the final fifth of the speech, the President announced his dissatisfaction with current US nuclear strategy based on Mutual Assured Destruction and continued,

> "Let me share with you a vision of the future which offers hope."

In this vision, the US

> "could intercept and destroy strategic ballistic missiles before they reached our own soil or that of our allies."

The ultimate aim, he said, was to render nuclear weapons "impotent and obsolete".[9] References to outer space and to directed-energy weapons were made only in background press briefings by White House officials, but these were subsequently taken to be the real substance of the proposals. Presumably, the interception and destruction of strategic ballistic missiles only makes sense if conducted in outer space. *The New York Times* the next day printed the full text of the speech and in its accompanying story used the term 'umbrella' as its main metaphoric figure. It also referred to the 'High Frontier' plan (to use off-the-shelf technology to create an immediate space-based defense system), though it called this plan 'military utopianism' and pointed out Pentagon disapproval of it.[10]

Congressional response was different. Democrats, hostile to the proposal, immediately deployed the language of popular culture, and especially SF, to emphasise the proposal's lack of credibility. The day after the speech, Congressman Les Au Coin referred to "*Dr Strangelove* insanity", Congressman Ted Weiss, in probably the first actual usage, talked about "futuristic *Star Wars* schemes", Congressman Thomas J. Dewey said that

> "the only thing the President did not tell us last night was that the Evil Empire was about to launch the Death Star against the United States",

---

[9]Ronald Reagan: "Speech on Military Spending and a New Defense", *The New York Times*, 24 March 1983, pA20

[10]Ibid., pA21

and Congressman Edward J. Markey, in an absolute *tour de force*, as reported by Senator Larry Pressler, explained that, to the President

> " "the Forces of Evil are the Soviets. They are Darth Vader. We are Luke Skywalker and we are the Force of Good." Edward Teller, the original ET, Mr Markey asserted, must not be allowed to lead us into "some kind of pinball outerspace war between the 'Force of Evil' and 'the Force of Good' ". "[11]

In the official Democrat response to the President's speech, Senator Daniel K. Inouye referred not only to a "*Star Wars* scenario", but also to "*Buck Rogers* weapons"[12]. The dominance of SF film references in attacks on the scheme is very evident from the beginning. Four different films are referred to, but more importantly, all but one of the five men quoted refers to *Star Wars*. It is obviously the most powerful, as well as the most recent, source of referents. The Democrats were using SF not as a provider of explanatory imagery, but to exploit its negative connotations as a popular **fictional** discourse, the very reverse of 'serious' scientific discourse. In this usage the opposition is absolute; if something is SF, it cannot be scientific. In describing the proposal as SF, the Democrats intended to dismiss it. Supporters of the President's plan demonstrated their recognition of the incommensurate statuses of the two discourses and the force of the Democrat's device by using no references to SF, and only doing so later to rebut attacks by rejecting the ascription.

Terms derived from *Star Wars* shifted from being explanatory images predominantly referring to weaponry and derogatory only to the extent that they indicated that the reader was expected to lack scientific education, to being used to dismiss the President's vision. By 27 March 1983, *The New York Times* had fully adopted the use which is still current, referring in its first editorial to a Star Wars competition with the Soviets, and dropping the inverted commas previously used to designate the film title.[13] A page one article on space weapons and the Outer Space Treaty on the same day, refers to them as "the ray guns of science fiction", instancing perhaps that it was already becoming necessary to have separate terms for the instruments and

[11] Pressler: *Star Wars*. [All four Congressmen are quoted on pp66-67.]

[12] Francis X. Clines: "Democrats Assert Reagan is Using *Star Wars* Scare to Hide Blunders", *The New York Times*, 25 March 1983, pA9

[13] (First Leader), *The New York Times*, 27 March 1983, p18E

the scheme. On 31 March 1983, a full page advertisement for *Scientific American* opposite the leader page of *The New York Times*, displayed articles on directed energy weapons taken from the journal, with one of the two main captions reading

> "Star Wars weapons: reason or rhetoric? Physics puts their feasibility in doubt as shown in *Scientific American* starting four years ago".[14]

The separation between the discourses, with 'reason' covering physics and feasibility, while 'rhetoric' accounts for the SF component, is again evident. The same issue of *The New York Times* also indicates the first shift of the term into the Reagan camp when the "Washington Talk" page included in an article on problems among Reagan's aides, a reference to how,

> "The proposal quickly became known as Mr. Reagan's answer to the film *Star Wars*".[15]

On the surface, Star Wars seemed an unlikely title for Reagan's vision. In the film, the laser weapon which led to the kind of use of the term exemplified earlier by the article from *SSAM*, was a light sabre used only in ritual hand-to-hand combat. The closest parallel within the film to any of the weapons or weapon systems under consideration, was the Death Star itself - set in space and laser armed. This was the possession of the Evil Empire and the target of the (good) rebels, whose aim throughout the film was to destroy it. The principal use of a space-based directed-energy weapon was when the Death Star destroyed the peaceful planet Alderaan. At first sight, this appears an unlikely source for an analogy for the benign system the President had envisaged. Jane Caputi, who includes an argument on *Star Wars* similar to mine in her wider examination of what she calls 'phallotechnology', sees this destruction of the planet as **unconsciously** the central moment of the conjunction of film and military programme.

> "The shared naming is completely logical for each visualizes/portends the complete destruction of the earth."[16]

---

[14](Advertisement), *The New York Times*, 31 March 1983, p24A

[15]"Washington Talk", *The New York Times*, 31 March 1983, p12B

[16]Jane Caputi: "Seeing Elephants: The Myths of Phallotechnology", *Feminist Studies*, 14(3), Fall 1988, pp487-524. p519. [Caputi's article, which was published after the writing of the

The purpose of the Democrats' use of the term, however, was not to point out the destructive potential of the proposal, but to ridicule it by using a discourse the connotations of which implied that the proposal was far-fetched. Concurrent use of other film references like *Dr Strangelove* and *Buck Rogers* function in the same way. References to *Dr Strangelove* carried implications of nuclear megalomania. Those to *Buck Rogers* implied good intentions but total impossibility and fantasy. When later, in 1984, the ex-astronaut Senator John Glenn expressed reservations about the deployment of particle beam weapons, he too referred to Reagan wanting to look like Buck Rogers,[17] intensifying the negative connotations.

There does not seem to have been any intention to imply an equivalence between the President's plans and those of the Empire in the film. The Empire was not equated with the United States. The **overt** references to the Death Star, Darth Vader and the Evil Empire in the various Congressmen's pronouncements were all linked to the Soviet Union. In applying 'Star Wars' as a term of derision, it appears that the Democrats used it more as a free-floating signifier, disregarding the specific content of the film and simply exploiting the negative and fictional status of SF to accomplish the degradation and dismissal of the projected programme. The vehicle chosen for the dismissal was the highest profile SF film which included at least one relevant word - 'wars'. A much more relevant title of dismissal would have been 'Space Invaders', because of the overt similarities between the destruction of incoming missiles in the video-game and Reagan's vision, but this does not appear except in Congressman Markey's 'pinball outer space war'. The practice of debunking political proposals by film references of any kind is a fairly standard procedure; it ascribes fictionality, but not as strongly as using SF film, with its added denial of scientific feasibility, does.

The use of Star Wars as a way of referring to the proposal was not limited to the US. In Britain, *The Times* page one article on 25 March 1983 quoted Senator Edward Kennedy referring to

> "misleading scare tactics and the reckless Star Wars schemes of the President".[18]

---

first draft of this chapter, also uses a number of the same sources.]

[17]Pressler: *Star Wars*, p136

[18]Richard Owen: "Reagan Accused of Violating Pacts", *The Times*, 25 March 1983, pp1 and 32. p1

On 30/3/83, again on the front page, the President's speech was twice described as "the *Star Wars* speech", though the plan was explained as being for a "space-age protective umbrella".[19] Later in the same issue, an article reprinted from *The New York Times* used two other SF references - it was entitled "Why Reagan is Lost in Space" and quoted the former president of M.I.T., Jerome Wiesner, who dismissed the technical feasibility of the plan as "Buck Rogers warfare".[20] The 'Star Wars' term seemed to become naturalized in *The Times* during the year, losing both the quotation marks and the need to be derived from an American source.

By the end of 1983, 'Star Wars' had become the ordinary term to refer to the President's proposal. The media had adopted the Democrats' naming of it, but did not necessarily do so dismissively. Star Wars, initially the term of opposition derision, slipped over to a more general, and arguably more neutral, use. Speaking of this slippage, Keith Payne notes that at first the term

> "was meant to discredit the program by making it seem fanciful, even silly . . . On the other hand, most Americans enjoyed the movie *Star Wars*, believe that the Soviet Union is indeed an 'Evil Empire' and, according to recent poll data, believe that American technology can make defense against nuclear weapons possible."[21]

In other words, the dismissive device failed to work fully at a popular level, where SF was often a source of convertible images, where the film had been pleasurable, and where there appeared to be a 'fit' between the name and ideological conceptions about the proposal. All this was aided by there being no other more formal name readily available. The President's speech had used none and nor did subsequent White House comment. Reports referred to 'Anti-missile ideas', 'a Space Defense Plan' and perhaps most frequently to a 'Missile Defense Plan', but none of these was used consistently, nor did they sound particularly specific - certainly they lacked any memorability or popular appeal.

It may or may not be completely incidental to the adoption of the term that

---

[19]Nicholas Ashford: "Reagan to propose missile compromise", *The Times*, 30 March 1983, p1

[20]Anthony Lewis: "Why Reagan is Lost in Space", *The Times*, 30 March 1983, p12

[21]Keith Payne: *Strategic Defense: Star Wars in Perspective*, Lanham MD., Hamilton Press,1986. p19

the third film in the *Star Wars* trilogy, *Return of the Jedi*, was released in May 1983. One of the major sequences in this film is the battle between the (good) rebels and the Empire Startroopers on the moon Endor. The rebels are trying to destroy a generator which is maintaining a protective shield around the second Death Star in orbit above Endor. Again the main space weaponry is offensive and belongs to the Evil Empire; the good rebels must attack it on a personal level - in small fighter spacecraft or in virtual hand-to-hand combat on Endor. The shield furthermore is designed to protect neither people nor countries, but the space weapon itself. There is thus again, as there was with the first Death Star, a very great disparity between the aggressive-destructive use of space-based 'laser' weaponry in the film and the protective-defensive use of them projected by the Star Wars proposal. It does not however appear to have hindered the adoption of the name.

The collapsing of the distinction between offensive and defensive weapons and techniques is characteristic of military policy and discussions about it. As the adage 'attack is the best form of defence' makes clear, the distinction is often irrelevant; and invasions are usually justified as being in defence of some group or principle. Weapon systems may be adjudged good or bad on the basis of whether they are 'ours' or 'theirs', so the ownership of the 'laser' weaponry by the Evil Empire in the films is not necessarily relevant. The term 'shield' is however more important, especially as it is used both in the film and in the proposal. A shield is regarded as a protective device, and therefore benign, yet a shield in its literal military use is carried only by a fighter; it protects the body so the arm may wield a sword or spear. The shield around the Death Star is precisely such a device; it protects the weaponry. As will be shown later in the chapter, it is a major irony of the development of the Star Wars/SDI programme that this initial disparity between film and proposal has disappeared as the current plan has come to involve 'shielding' only the missile silos.

Initially the Star Wars story did not seem to be particularly important. The plan was not one of the big stories in the news of 1983. The shooting down of KAL007 and the invasion of Grenada were both given much more prominence, as was the start of campaigning for the 1984 Presidential election. As a defence story, Star Wars soon became overwhelmed by the Arms Control negotiations on the one hand and the funding of the MX missile on the other. There were even other high profile space stories, with the Space Shuttle claiming a deal of attention through sending the first American woman

into space and then the first black. 1983 was also NASA's twenty-fifth anniversary and Reagan announced the start of work towards a space station and eventual space factories.

In November 1983, however, the screening of the TV film *The Day After*, seen by an estimated sixty per cent of the U.S. population, and the subsequent debate focussing public attention on the consequences of a nuclear attack, were probably influential in returning the Star Wars proposal to some prominence. So too was the passage of its first budgetary allocation, which began in December. Despite the increased importance of the plan, there was still no recognized alternative to the name 'Star Wars'.

The term Strategic Defense Initiative, which was to become the formal alternative, was not used at all during 1983. Although there were a few references to 'strategic defense' (no capitals), these seem just to have been taken as relatively standard defence-speak. It is possible that the new term was used in National Security Decision Directive 119 which was signed on 6 January 1984.[22] The earliest public use of the term SDI that I can find is on 28 March 1984, in a story on the appointment of Lt-Gen James A. Abrahamson

> "to be the program manager of what the Reagan Administration calls the "strategic defense initiative" [no capitals], a program suggested a year ago by President Reagan."[23]

No doubt a more acceptable, descriptive name for the Reagan plan was essential once a special office had been established and budgetary appropriations made. On 10 April 1984, the "Washington Talk" page of *The New York Times* included an item entitled "the name game" which read in part

> "Jargon, labels and acronyms are an inevitable part of the political process. Defense and Administration officials who are involved with President Reagan's year-old proposals for a new anti-ballistic missile programe are not pleased with the label 'Star Wars'. It has been

[22] This seems to be suggested in Keith Payne and Colin S. Gray: "Nuclear Policy and the Defense Transition", *Foreign Policy*, 62(4), Spring 1984, pp820-842.

[23] Charles Mohr: "General to Head Missile Program" *The New York Times*, 28 March 1984, pA19

> pinned on the plan and it has stuck.
> The officials prefer dry letters to the more
> flamboyant use of a science fiction movie title,
> and they are now referring to the President's
> plan as "SDI" for "strategic defense initiative". "[24]

The new term was not rapidly, and certainly not whole-heartedly, adopted. News reports even at the time of writing still use 'Star Wars' before 'SDI' and explain SDI by reference to Star Wars.

A degree of unease with both the Star Wars and SDI terms was revealed by the call in February 1985 from *The New York Times* columnist, William Safire, for his readers to develop a useful new acronym for the programme. The first leader of the same day, which attacked the plan, used Star Wars as the name throughout, but also directed readers to Safire's semi-serious piece.[25] A month later, Safire revealed some of the responses he had received, but suggested that perhaps the best name would be no acronym at all. Instead it should be called simply the 'shield'. He admitted, however, that he did not expect the Administration to be able to get rid of the term 'Star Wars'.[26]

Safire's articles emphasise that the name of the programme was important, it was also the subject of a struggle. The Democrat's aim in this struggle was to dismiss by naming. The purpose of their metaphor was not to hide but to reveal the 'true' nature of the proposal - that the 'true' nature was a fiction and not an ordinary fiction furthermore, but a science fiction fantasy. In popular use, the metaphor was accepted as not necessarily derogatory, but perhaps as having a certain explanatory content. The Republicans, accepting that an SF name discredited the scientific basis of their proposal, rejected the term until eventually coming up with an alternative free of any suggestion of the fictional.

This struggle first over the use of the Democrat's term and then between the opposing terms Star Wars and SDI was a particularly overt instance of a **discursive** struggle. 'Star Wars', drawn from the world of entertainment and denigrating the proposal through ascribing it to the fictional, vied for primacy with 'SDI' which called on the formalities of the non-fictional, 'scientific' military

---

[24] - - "Briefing", *The New York Times*, 10 April 1984, p28A

[25] William Safire: "Acronym Sought", *The New York Times Magazine*, 24 February 1985

[26] William Safire: "New Name for 'Star Wars' ", *The New York Times Magazine*, 24 March 1985, Section 6, Part 1, pp15-16.

bureaucratic.

The notion of a discursive struggle is drawn from the work of Michel Foucault. To understand what was happening in this particular struggle, it is necessary to begin by looking at what Foucault meant by the term 'discourse'. He held that discourses are

> "practices that systematically form the objects of which they speak."[27]

They are groups of statements whose unity is formed not through identity of meaning or origin, but through systems of dispersion[28]. The discourses on which he concentrated as examples included those of grammar and medicine. In every society, Foucault argued,

> "the production of discourse is at once controlled, selected, organized and redistributed by a certain number of procedures whose role is to ward off its powers and dangers, to gain mastery over its chance events, to evade its ponderous, formidable materiality."[29]

In analysing discourses, he advised the use of both critical and genealogical practices; the former identifying the principles of sanctioning, excluding and delimiting discourse, and the latter looking at

> "the power to constitute domains of objects in respect of which one can affirm or deny true or false propositions".[30]

But what constitutes a true proposition? For Foucault, truth did not arise out of an equivalence between a statement and the 'real' object to which it corresponded, but rather from what, following Neitzsche, he called the 'will to truth'. Foucault was insistent that the will to truth was discursively constructed and historically contingent.[31] The truth of a statement depended on its

[27]Michel Foucault: *The Archaeology of Knowledge*, London, Tavistock, 1972. p 49

[28]Ibid., p 37-8

[29]MIchel Foucault: "The Order of Discourse" (1970), in Michael Shapiro (ed.): *Language and Politics*, Oxford, Basil Blackwell, 1984. p109

[30]Ibid., p133

[31] Ibid., pp111-2

discursively established claims to truth and the relations of power through which its truth was effected. He termed this combination of knowledge and power a 'regime of truth'. Particular regimes of truth were dominant in particular epochs; in medieval Europe, claims to truth needed to be couched in religious terms; in contemporary Western societies, scientific discourses dominate.

> "Each society has its regime of truth, its 'general politics' of truth: that is, the types of discourse which it accepts and makes function as true; the mechanisms and instances which enable one to distinguish true and false statements, the means by which each is sanctioned; the techniques and procedures accorded value in the acquisition of truth; the status of those who are charged with saying what counts as true."[32]

He then outlined five traits of the 'political economy' of truth as they operate in societies 'like ours'. First, he pointed out the centrality of scientific discourse,

> " '[t]ruth' is centred on the form of scientific discourse and the institutions which produce it".[33]

The remaining traits refer to: how truth is actively demanded for both political and economic purposes; how it is widely diffused and consumed through educational and informational apparatuses; how a limited number of powerful apparatuses like the university and the media dominate its production and transmission; and how it is itself the stake - what is at issue in "political debate and social confrontation".[34]

The discursive struggle over the naming of Star Wars can thus be seen to be over a most contentious area - in what discourse 'true' statements may be made about the future. Who is able to make them, or more precisely who is able to make them operate as 'truth', is also important. Foucault emphasises the possibility of variation in the latter respect by pointing out how some discourses are controlled by limiting access to their use, while others appear "almost open to all winds".[35] Safire's attempt to encourage popular renaming

[32]Michel Foucault: *Power/Knowledge,* p131

[33]Ibid..

[34]Ibid., pp131-2

[35]Foucault : "The Order of Discourse", p120

suggested that this discourse was open, but his later acknowledgement that he (and his readers) were actually powerless to alter the name, was a recognition that the discourse was effectively closed.

Because it will be so important to what follows, it is necessary to expand further how Foucault is using the term 'scientific discourse'. Most pertinent for my purposes is his rejection of an equation of 'science' and 'true knowledge of the real'. In considering discourse, Foucault abandons a 'realist' conception of language and scientific knowledge.

> "Knowledge is to be found not only in demonstrations, it can also be found in fiction, reflexion, narrative accounts, institutional regulations, and political decisions."[36]

Although in the majority of his works, his principal focus is on the human rather than the natural sciences, the distinction between them is less important in *The Archaeology of Knowledge* where Foucault is pondering the conditions in which "a region of scientificity in a given discursive formation" emerges.[37] He outlines a form of historical analysis situated at this very point of emergence, one purpose of which

> "is to discover, for example, how a concept - still overlaid with metaphors or imaginary contents - was purified, and accorded the status and function of a scientific concept. "[38]

Despite being mainly concerned here with histories of sciences, Foucault's emphasis on the importance of micro-relational aspects of power within discursive formations is characteristic. It suggests a potentially productive way to consider the particular problem over the title of Reagan's military policy proposal - the impurity of its imaginary name.

In examining the Star Wars case I will be paying particular attention to the role of science (which in this study means the 'hard' sciences and technology, rather than the human sciences), in the privileged regime of truth, questions of access, the relations between power and knowledge and the constraints of the will to truth elaborated in Foucault's work. I will also be taking from Foucault the idea that discourse is itself an object of desire,

---

[36]Foucault : *Archaeology*, pp 183-4

[37]Ibid., p184

[38]Ibid., p190

> "not simply that which translates struggles or systems of domination, but . . . the thing for which and by which there is struggle."[39]

Desire here refers to the way in which discourse is not only a means through which the struggle for power and domination is effected, but the issue itself. Each side has made an investment in establishing the 'truth' of the discursive content and wants its own truth claim acknowledged.

The first discursive struggle or clash was simply over the acceptance or rejection of a particular name. The supporters could not accept the name, since that involved accepting the ascription of fantasy which the use of a fictional discourse entailed. They suggested no alternative, perhaps because the programme being suggested was still too dispersed and unfocussed. They concentrated instead on the question of the 'true' nature of the programme which they chose to approach through its feasibility. To do this they needed to evoke the belief in technological competence, the mastery of 'reality' by science and the can-do inventive spirit central to the American myth. Jeff Smith, for example, stresses how, in American popular culture, technology is not neutral, is seen as

> "the product of American ingenuity and the backbone of this country's strength . . . Technical advancement makes the world a better place, and by leading the way in technical advancement, America makes the world a better place."[40]

In the Star Wars speech, President Reagan was appealing to this belief. Dominique Pignon, writing of European responses to SDI, also points out the ideological aspect, arguing that those who attack the programme on its scientific or technological weaknesses alone are ignoring its political function.

> "Technology and science have been surrounded by the media with such a magical aura that any

[39]Foucault: "The Order of Discourse",p110

[40]Jeff Smith: "Reagan, Star Wars and American Culture", *Bulletin of the Atomic Scientists*, 43(1), Jan/Feb 1987, pp19-25. p21

> reservations about the possibility of technology could only come from 'losers' and 'Cassandras'. "[41]

The emphasis on technological competence needed to be spoken in formal 'truthful' scientific language, hence 'SDI'. Through the use of 'SDI', the Reagan initiative became linked to American technological capability so that to doubt one was to impugn the other.

For the popular audience (unlike the political representatives) there was no lack of accord between claims to technological competence and *Star Wars* referents - both of the competing terms spoke of the 'can-do' spirit. The film audience were never left in any doubt that Luke Skywalker would deliver the plans of the Death Star to the right people, nor that they would invent a counter or discover a weakness in it, nor that Luke would succeed in dropping his bomb into the thermal duct. The audience could not apply the word 'impossible' to the activities of the good guys. Similarly, it was difficult for a people steeped in the belief of their nation's technological capabilities to accept the Democrat's assertion that the desire for a technological defense against nuclear weapons was itself 'impossible'.

This would seem to be a major ground on which the Democrats' attempt to dismiss by naming, and so win the discursive and ideological battle, failed. 'Star Wars' was not the free-floating signifier they had assumed. It carried with it more than just the capability to ascribe fantasy through identification with an SF film. It also carried some of the narrative components of the film and some of the affective responses to it. The message of *Star Wars* embodied in the philosophy of the Jedi Knights, was that, if one believed in oneself and opposed 'the Dark Side of the Force', all was possible. Through repeated and not necessarily negative, media use, the name became disarticulated from its association with the Death Star and with fantasy and rearticulated to the can-do spirit and the desire for security.

The childlike character of *Star Wars* was also important. It spoke of moral certainties and admitted no shades of grey. It was

> "about mankind's seemingly unlimited potential, above all emotionally, for goodness and greatness. The film is indeed what Lucas has called it 'an intergalactic dream of heroism' ."[42]

---

[41] Dominique Pignon: "The Strategic Defense Initiative and Europe", *Telos*, No. 67, Spring 1986, pp45-56, p51

[42] Anne Lancashire: "The *Star Wars* Saga: Comedy Versus Tragedy", *The Dalhousie*

This aspect of the film contributed to the popular **positive** attribution of its name to Reagan's plan. It was this that the Democrats called up along with the dismiss-as-fantasy device and this was one reason that their naming failed. Reagan's offer of an almost fairy-tale invulnerability from nuclear attack spoke clearly through this childhood dream. (Both supporters and opponents of the scheme were later to acknowledge the strength of childlike optimism in its appeal. The television commercials each side made and had broadcast in the US in 1986 featured children's visions. The supporters used a child's drawing of a rainbow protecting a house, while the opponents had a child watching the stars with a voice-over message wondering if further children would be able to do the same.[43])

It is possible that the positive or neutral attachment of the Star Wars name was an example of a more general shift in the discursive strategy of dismissal by allegation of science fictionality. The Democrats had attempted to identify Reagan's proposal with SF and thus with fictional fantasies. Yet a significant number of the clichés of the SF genre had become actualities. Technological devices like robots and waldos drew their names from appearances in SF before they were fully realized in actuality; communication satellites too appeared first in SF; spaceships, transplants and holograms had become commonplace, and so had test-tube babies. It was beginning to seem more the case that if an SF writer could think of an invention, American technology could bring it about. The set phrase behind the Democrat's strategy, 'that's just science fiction', had become 'this may look like science fiction, but . . . '; the first one was just dismissive, but the second acknowledged the dismissal only to refute it. This second phrase, a tacit acknowledgement of the equivocal status of SF, has become common in political and popular scientific discourse, and not just in the US (as will become evident in the course of this study). A version of it has already been quoted earlier in this chapter in Senator Paul Tsongas' 3 February 1984 speech. I do not wish to suggest that the practice of dismissing something by calling it SF is no longer valid, just that it is no longer necessarily successful. The equivocal status of SF comes from outside its own field of fictionality, on a number of achievements that are within the scientific domain, that can call on a scientific basis for their 'truth'.

Review, 62(1), Spring 1982, pp5-13. p6

[43]MIchael Cockerell: "Debating Star Wars in rhymes and rainbows", *The Listener*, V.115, No 2949, 27 February 1986, pp7-8, 12.

The attempt to dismiss Reagan's proposal solely by describing the proposed strategy as science fictional failed because it overlooked the narrowing of the gap between SF and what was seen to be technologically feasible. The discourses of science and SF are not as disparate as the Democrats had assumed. To give an example of a scientific proposal that it is difficult to distinguish from an SF device, a scientific report to the SDI Office by the Defensive Technologies Study Team (the Fletcher Panel) set up by the President, talked of a one hundred metric ton shield to protect the space-based components physically. To build such a massive object they suggested

> "Material from the lunar surface or from nearby asteroids can be brought to the vicinity of the Earth".[44]

This is an instance of a more general point; the inability to keep the referents of fictional and scientific discourses separate. It is often no longer possible to tell easily whether some future artefact is scientific forecast or SF fantasy. This may be because the distinction has become blurred from both sides; a growing body of SF is being written by practicing scientists, and devices which were science-fictional have been developed in actuality. 'A laser space battle station' could be forecast or fantasy and sometimes not even the context helps decide which it actually is. This convergence between the two discourses is a key element in the current argument.

Thus, the Democrats succeeded in attaching the name 'Star Wars', but failed in their attempt thereby to ridicule the plan into abandonment. It was still possible to use the term dismissively, but it needed a contemptuous intonation, a suitable context or the additional 'so-called'. This did not mean that the Administration would accept the term however. The scientific discourse remains the most potent one in which to assert the truth of statements. Even if the source of the Star Wars name could be overlooked, it sounded too frivolous, too unscientific to be the public name of such a hi-tech military strategy.

PROFESSIONAL LANGUAGE

The name 'SDI' had neither of these drawbacks. It was not an acronym as the letters did not make a pronouncable word. This emphasised its

[44]Donald L. Hafner: "Assessing the President's Vision: The Fletcher, Miller and Hoffman Panels", *Daedulus*, 114(2), Spring 1985, pp91-107, p95 (Quoting from *Aviation Week and Space Technolgy*, 17/10/83, p19)

seriousness. It made no promises of any specific achievements, since 'initiative' refers only to a beginning and an Initiative that has its own Office and a sizable budget has certainly made a beginning. And the word 'Defense' stressed that all the spending was necessary because of the urgent need to develop protection against the likelihood of attack. The most important asset of the term SDI though, was that it excluded. It marked out the discursive terrain as limited. Discussion of the programme thus became the preserve of the professional, not of the public at large. Star Wars was an inclusive term, everyone could use it. This was useful because it gave the proposal an air of popular appeal, but it also made its meaning uncertain and imprecise. Keith Payne, while claiming that opinion polls showed seventy-five to eigthy-five per cent of the US population supported

> "the concept of protection against nuclear attack with 'Star Wars' weapons",[45]

points out in a footnote that the level of support decreased when the term 'Star Wars' was used.[46] Whether this reveals some success in the Democrats' attempts, as he believes, or the greater power of the Republican's scientific term, is uncertain.

Arthur C. Clarke, delivering the Nineteenth Jawahrlal Nehru Memorial Lecture in New Dehli on 13 November 1986, thought he knew what 'Star Wars' was evoking.

> "The name 'Star Wars' - deplored both by President Reagan and the indignant George Lucas - has distorted the Strategic Defense Initiative's public image. In particular, it has focussed attention on orbiting fortresses using laser beams to zap ICBMs as they rise out of their silos - or if they miss the first time, catching the warheads before they can re-enter the atmosphere.
> But the problems of building and above all powering such veritable 'Death Stars' are enormous."[47]

As a scientist and also one of the most famous and respected SF writers in the

[45]Payne: *Strategic Defense*, p23

[46]Ibid., p 26n

[47]Arthur C. Clarke: "Star Wars and Star Peace, *Interdisciplinary Science Reviews*, 12(3), Sept. 1987, pp272-277. p274

world, Clarke mediates between both discourses. Delivering a prestigious political lecture, he attacks the scientific feasibility of the military programme, dismissively referring to 'Death Stars' and asserting that the SF title has misled the public. His reputation, founded on the 'invention' of communication satellites and spread by the success of the films *2001: A Space Odyssey* and *2010*, both based on his stories, enables him to speak definitively on the struggle, so it is noteworthy that he prefers the term SDI, despite his opposition to the proposal. By 1986, this was undoubtedly the term with scientific clout.

It is a characteristic of professions to develop specialized vocabularies to speak of their work. Writing of the development of professional languages, JoAnne Brown argues that an esoteric vocabulary is developed or created to reinforce the monopolization of skill essential for professionalization and to stress the particularity of its technical base.[48] Such a language excludes and access to it is limited. However, there remains the problem of how to communicate with the clientele. This is where metaphors enter the scene. She argues that metaphors are the most commonly used devices for explaining matters to those outside the profession without giving 'secrets' away.[49] The Star Wars metaphor may have had this function as far as lay people were concerned, but it was unsatisfactory to the professionals since it was not under their control. The professionals in this case were the Administration, scientists, and what Carol Cohn calls 'defence intellectuals',[50] and Robin Luckham 'security intellectuals'.[51] By contrast, SDI is an acronym rather than a metaphor, but as a term created by the professionals it serves the same function in popular communication as metaphorical language in resolving, in Brown's terms,

> "the contradiction between popularity and monopoly that lies at the heart of the project of professionalization, because it advertises without disclosing, and sells without delivering, the special knowledge that is the professionals' commodity".[52]

[48]JoAnne Brown: "Professional Language: Words that Succeed", *Radical History Review*, No. 34, Jan. 1986, pp33-51. p36

[49]Ibid., p38

[50]Carol Cohn: "Sex and Death in the Rational World of the Defense Intellectuals", *Signs*, 12(4), Summer 1987, pp687-718. p687

[51]Robin Luckham: "Armament Culture", *Alternatives*, 10(1), Summer 1984, pp1-44. p11

In fact, SDI did not have a straightforwardly uncontroversial career in the media. Initially commentators derided the new term, as *The New York Times* did in April 1984, although the persistent use of it in Administration pronouncements rapidly made this difficult. Speaking seriously about the proposal came to involve, at the very least, using **both** terms. Martin Amis for example, in an extended review of 'SDI and its Literature' for *The Observer*, demonstrated how far this move from one term to the other had gone. He used the term 'SDI' eighteen times and 'Star Wars' only twice - once to establish what SDI was and then as the title of the Reagan speech.[53] 'Star Wars' ensures that one is understood by the general public, but 'SDI' is more important since it means that one can be taken account of by the professionals, and not dismissed immediately as speaking solely to the populace at large.

Perhaps the most thorough examination of what she terms 'technostrategic discourse' is Carol Cohn's account of her year in a carefully unidentified US university centre on defence technology and arms control. She provides a practical example of Foucault's comments about discourse and truth, quoted earlier in of this chapter. At first, she noted the blandness, abstraction, euphemism, even inverted meaning in this type of language and the prevalence of certain sets of metaphors: medical ones like 'surgical strike'; sexual ones - 'deep penetration', 'nuclear virginity'; homely ones 'silos', 'footprints'; and theological ones - the first atomic bomb test was called Trinity. (Brown noted that both medical and theological metaphors are very common, especially in times of professional crisis.[54]) Later, Cohn went on to discuss the pleasures of the use of this discourse. She stresses not so much the utilitarian one whereby it

> "restricted communication to the initiated,
> leaving all others both uncomprehending
> and voiceless in the debate",[55]

but rather

> "the thrill of being able to manipulate an arcane

[52]Brown: "Professional Language", p48

[53]Martin Amis: "Apocalypse 2000", *The Observer*, 31 January 1988. p27

[54]Brown: "Professional Language", p39

[55]Cohn: "Sex and Death", p703

> language, the power of entering the secret kingdom, being someone in the know."[56]

Developing linguistic competency in this type of professional language, she argues, gave an illusion of being in control and made her less frightened of nuclear war, partly because the language itself is structured to remove the speakers from the position of victims and place them instead as planners and users.[57]

Not only did the language site the speaker, it also structured what it was possible to speak about. In technostrategic discourse, the equivalent term for 'peace', for example, was 'strategic stability'; the killing of civilians was 'collateral damage'. Ignoring the restrictions led to the speaker being defined as non-professional. As Cohn commented, to choose to speak of peace,

> "is immediately to brand oneself as a soft-headed activist instead of an expert, a professional to be taken seriously".[58]

In examining the conceptual system structuring the language, she found that the reference point of technostrategic discourse is the weapons themselves. The humans supposedly being protected by the weapons are irrelevant, truly collateral.[59] What matters are the technical considerations, while moral, social and psychological matters are extraneous, even illegitimate. Her conclusion acknowledges the seductiveness of the language and learning to speak it, but she warns that it is

> "a transformative rather than an additive process",[60]

and opponents should be wary of learning it, thinking that it will simply mean that they will be listened to by the professionals, since they will be listened to only as long as they stay within its peculiar constraints.

'SDI' is a fine example of the technostrategic professional language Cohn is writing about. It is abstract, bland and meaningful only if one assumes the inevitability of being attacked. The conflict between it and 'Star Wars' is

[56]Ibid., p704
[57]Ibid., p704-6
[58]Ibid., p708
[59]Ibid., pp711-12
[60]Ibid., p716

also given extra point by her analysis. 'Star Wars' does involve people, invites moral judgements and is not weapon centred. This last, as Cohn made clear, is particularly contrary to technostrategic discourse. The President's vision, of protecting the American population and rendering nuclear weapons impotent and obsolete, was from the outset difficult to phrase technostrategically in a language which is centred on weapons and cannot speak of people. Perhaps this is why it was so long unnamed except by the Democrats. Now that the programme has been worked on by defence intellectuals and named scientifically, its technostrategic character can be observed. Thus there is the irony that much of the proposed SDI hardware will not render nuclear weapons obsolete, but will itself depend on nuclear weaponry. (For example, the X-ray laser, which is a central component of the programme, is powered by a nuclear explosion - the euphemism is 'nuclear-pumped' - which subsequently destroys it.) As I foreshadowed earlier, the current SDI plan is to protect **the missile silos**, not the population. This is absolutely in keeping with Cohn's analysis.

Reagan continued to try to maintain his initial vision under its new technostrategic title and programme, but ironically often did so by referring to the 'illegitimate' name. In a speech at the National Space Club in 1985, he said

> "the Strategic Defense Initiative has been labelled 'Star Wars', but it isn't about war. It is about peace. It isn't about retaliation, it's about prevention. It isn't about fear; it's about hope. And in that struggle, if you'll pardon my stealing a film line 'the Force is with us'. "[61]

The film in question is, of course, that very film *Star Wars*. The irresistibility of the populist position reactivates all the connotations he had been disputing earlier and places the programme once again in the fictional domain.

In apparently being unable to escape from the *Star Wars* film imagery, Reagan demonstrates one of the discursive consequences of metaphor - its power to influence and constrain subsequent thinking about a subject. Yet metaphors also allow change. George Lakoff and Mark Johnson have pointed out how President Carter's declaration that the energy crisis was a state of war led to a number of consequences that were the result of thinking about war. This, in turn constituted a licence for policy changes and for otherwise

[61] Gregg Herken: "The Earthly Origins of Star Wars", *Bulletin of the Atomic Scientists*, 43(8), Oct. 1987, pp20-28. p26

unacceptable economic action.[62] Similarly, the 'War' part of the film metaphor, despite Reagan's attempts to disown it, may have made contributed to the acceptance of the conversion of the plan into one designed to protect weapons.

The other part of the metaphor, 'Star', also proved persistent. Its potency may also be seen in the names used in reports of plans and projects by the Strategic Defense Initiative Office: announcing a new pointing and tracking mission called Starlab, which uses experimental rockets called Star birds as targets for the Starlab's sensors; and in the name Zenith Star for a spacecraft housing a chemical laser (which has however become the victim of cuts in SDI budgets). Since these, like Star Wars/SDI itself, are intended to operate in relatively low Earth orbit, the term 'star' is massively inappropriate. This does not appear to have hindered its adoption. 'Star' functions to indicate 'in the sky' or possibly 'in space', in exactly the same way in which the 'Evening Star' is in fact the planet Venus. It is not however a similarly naïve use, since the names cannot avoid carrying echoes of the Star Wars metaphor.

STAR WARS/SDI IN THE BRITISH MEDIA

In the following section, I intend to examine the way in which Star Wars/SDI was dealt with in British newspapers and TV programmes after the issue of its naming had been temporarily 'resolved' by the use of both the SF and the technostrategic term. Since the dual naming represents a compromise rather than a victory for one discourse, examining the coverage in some detail makes it possible to track how the contest over the right to speak 'truthfully' about the strategy continued.

While 'Star Wars' continued to identify the plan to the general reader, journalists reporting on various tests write solidly in the missile-centred terms of technostrategic discourse. The only other material usually judged relevant is economic. Paragraphs like the following are typical.

> "The Zenith Star experiment runs against recent trends in Star Wars systems. Because of budget cuts, the programme has shifted to more modest aims, concentrating on 'kinetic energy weapons' small ground and space-launched projectiles that would destroy war-heads on impact."[63]

[62]George Lakoff and Mark Johnson: *Metaphors We Live By*, University of Chicago Press, 1980. p156

[63]Mark Tran: "Laser test succeeds in Star wars programme", *The Guardian*, 13 February

'Kinetic energy weapons' and 'kinetic kill vehicles' now appear in such news stories quite frequently. They are characteristic terms of technostrategic professional language, designed to exclude the lay reader. Yet a bullet is a kinetic kill vehicle, for example; the space mines the Soviet Union has tested and the ASAT missiles the US had in the early 70s certainly were. The High Frontier proposal supposedly influential on Reagan's thinking before the Star Wars speech, but not taken up by him, was for kinetic energy weapons. This article and the others like it, despite their use of the popular term, in all other ways acknowledged the force of the 'scientific' professional language in discussing the project.

It is not possible to be certain how many readers such an article would have, not whether they would read much beyond the headlines. Headlines however are important themselves in 'cueing' readers within political discourse. Looking at the headlines of Star Wars items in *The Guardian* over the two year period from October 1986 to Oct 1988, for example, reveals three categories of story: Star Wars has budgetary problems; Star Wars causes problems for US:Soviet agreement; and Star Wars test succeeds.

On British television news during the same period, Star Wars/SDI stories were less common than in the press, and were usually subsections of stories on Arms Limitation Treaties or stories of scientific success. In this they were similar to the American coverage. Robert Karl Manoff has given data on SDI stories on US TV news programmes saying that between the 1983 speech and the 1986 Reykjavik Summit, over two-thirds of the stories were diplomatic, 14 per cent were about scientific or technological matters including tests and the remainder were concerned with Administration policy and congressional or foreign relations.[64] Once the contest over attributing the proposal to the fantastic by naming it SF was concluded, it could only be atacked in news bulletins on political or technological terms.

The exceptions are illuminating. There were two in *The Guardian*: on 16 February 1987 " 'Deadly implications' of laser weapons"; and on 13 February 1988 "Star Wars 'cruel hoax on public' ". Both these stories come from the annual meetings of the American Association for the Advancement of Science and they represent the only occasions where moral evaluations of the programme intrude into the headlines. In both instances it is the moral

1988, p5

[64]Robert Karl Manoff: "Modes of War and Modes of Social Address: The Text of SDI", *Journal of Communication*, 39(1), Winter 1989, pp59-84. p60

evaluations of scientists rather than politicians. It may be thought that the morality of scientists is particularly newsworthy, but moral evaluation by politicians, even in the body of the articles, is rare. Neil Kinnock, for example, opposing the future extension of Star Wars contracts in Britain, does so on the basis of an economic rather than a moral evaluation, saying

> "It is a diversion of resources and it is not even businesslike. The scale of contractual returns is miniscule. What the US has been after is not British technology for the Star Wars project but British technologists."[65]

The 1987 article from the American Association for the Advancement of Science meeting reported on two papers. The headline and two-thirds of the article referred to a paper concerned to emphasise the offensive potential of the supposedly defensive Star Wars armaments. The remainder of the article, but not even a sub-heading, was devoted to a 'peace hostage' plan, whereby the threat of war was tackled, not by technology, but by the exchange of one million volunteers each between the superpowers. This non-technological plan was reported only with heavy scientific framing.

In TV documentaries, again scientists seem readily able to speak on moral issues. The only BBC access *Open Space* programme on Star WArs/SDI was made by scientists opposing it (BBC2, tx. 15 July 1987). This programme was centrally concerned with the morality of SDI, and overtly the product of the scientists themselves, made at their instigation. Even in more standard programmes, however, it seems more possible for non-scientists to speak of ethics on television than in the press - as was the case in the *Panorama* programme "The President's Star Warriors". This had Tom Mangold's ethically inflected commentary knitting together the scientific and political views of those working on and around the project. Nonethless it is worth noting that the constraints of technostrategic discourse are by no means abandoned on television. Most discussion of SDI is of its technological feasibility, its economics and its effect on superpower relations. Those who wish to enter public political discourse on the ethics of the enterprise are still more likely to be given prominence if they are speaking from an undeniably professional position, and the more scientific, particularly technostrategic, their discourse nonetheless manages to remain, the better.

---

65 - *The Guardian*, 24 March 1987, p36

The visuals illustrating Star Wars/SDI news stories on British TV, apart from talking heads, are most usually animated graphics of missile interceptions in space. In the *Open Space* programme, made by scientists opposing SDI, these graphics were referred to frequently, with comments made about how far they are from depicting what is likely to be technologically feasible, yet how much they imply feasibility. A Director at the Lawrence Livermore Laboratories (where much of the SDI Research and Development is conducted) remarked sardonically towards the end of the programme,

> "We have better graphics than the Russians,
> no doubt about that".

The graphics evoke video-games rather than the *Star Wars* films. Direct visual reference to the films did not appear possible. Manoff's extensive study of American TV news coverage, referred to earlier, provides one instance from that country where the film was used to provide visuals. Although it is not a British example, it provides a telling illustration of the disarticulation of the film and Reagan's proposal named after it that had occurred since the Democrat's attempt to dismiss the idea had failed. One extended report on SDI broadcast by the American network ABC on 30 October 1986 incorporated a clip from *Star Wars* into the report with the aim, says Manoff, of distancing SDI from the film. Han Solo was shown advising Luke Skywalker of the superiority of a blaster to religious faith, before the reporter says

> "The fantasy weapons in the movie *Star Wars*
> however are mere pop guns compared to what
> is really being contemplated."[66]

Fantasy, as Manoff points out, is displaced onto the film to emphasise the reality of the SDI weapons. Nonetheless, it is possible that this can only be done because the reporter used is arguably the most respected of American TV science specialists. Further emphasising the greater credibility of the professional term, this was the only moment in the over three minute report, and in the article analysing it, when 'Star Wars' was the term used.

Visual material is particularly important, though rather limited in range, in validating visions of the future. The frequency of video-game or computer model type graphics and the rarity of visuals derived from the film supports the tendency to minimal references to the film evident in non-visual coverage. The

[66]Manoff: "Modes of War"., p69

most common newspaper feature articles to mention the film were those reporting on the young scientists working on the Star Wars/SDI project at the Lawrence Livermore Laboratories. The major study of them is William Broad's *Star Warriors*, but the story there about their taking up a collection to buy their boss (Lowell Wood, a protege of Edward Teller) a Darth Vader costume, but not giving it to him for fear that he

> "would actually wear it as he wandered the halls urging them to work harder",[67]

is much reported. Broad himself is a regular writer of feature articles on SDI and other defence matters for *The New York Times*, and his stories are often reprinted in Britain. This is an indication that in many respects attempting to establish national distinctions, as I have been doing in this section, is unlikely to be able to be clearcut. Articles are reprinted and TV items use the same film, although they may recut it or use different voice-overs.

The collapse of national specificity can also be seen in another visual area where film is frequently evoked. Political cartoons are frequently reprinted in countries other than those in which they originated. Cartoonists have been quite persistent in sustaining a link between Star Wars and *Star Wars* through the intermediary of the actor-President. Films provide one of the most persistent sets of metaphors used by political cartoonists and the combination of Star Wars and Ronald Reagan made the connection irresistible. The two examples in Appendix A provide variations - Oliphant's cartoon draws on Reagan's past and the SF pulps of the 30s, but avoids all overt reference to *Star Wars*, while Gibbard ignores the past career while trebling the number of films referred to. Both presuppose a considerable familiarity either with the films or with their promotion. Gibbard's cartoon is totally structured on the dominant narrative image of *Close Encounters of the Third Kind*. SF films, including, but by no means limited to, *Star Wars*, provide the basis for commentary of this kind. Cartoons help keep the filmic resonances of Star Wars alive in political discourse, and also emphasise its frivolous character.

STAR WARS AND THE BUSH ADMINISTRATION

The Star Wars/SDI proposal and the discursive struggle over its naming which followed President Reagan's speech were both heavily identified with

[67] William Broad: *Star Warriors*, London, Faber and Faber, 1986. p106

the figure of Reagan himself. It was sometimes implied that the plan would not continue under another President. This expectation has not been fulfilled, but there have been certain modifications to the programme. To see how the proposal shifted from the Reagan to the Bush administrations, I intend to examine in detail one of the first stories about Star Wars under the Bush Administration to see if changes are evident.

The particular story, published in *The Guardian* 29 March 1989, was about statements made by the new US Defense Secretary, Dick Cheney, on US breakfast TV, rebutting *Wall Street Journal* claims that there would be substantial budget cuts for both Star Wars/SDI and the Stealth bomber (although the story did not deal any more with the latter). The headline used the term 'Star Wars' and the body of the article had two further references to that term and seven to 'SDI'. Their placement was informative; 'Star Wars' occurred in the first and second paragraphs, identifying the subject; the discourse then switched to SDI, the first mention of which spelled out the title in full. In other words, the more popular term set the stage. For those reading further, the professional term replaced the popular one and the language generally became more serious. ('Maverick' and 'maniac' occurred in the first paragraph, but later references to the same possibilility - offensive nuclear activity by some country other than the Soviet Union - used more sober terms, like 'other nations' and 'a number of countries'.)

The second paragraph foregrounded the move between Administrations. Cheney queried the possibility of an impregnable shield and the reporter, Martin Walker, comments that he did so

> "in a phrase which consigned Mr. Reagan's grandiloquent vision of Star Wars to the history books."

Cheney then continued

> " Oftentimes, during the Reagan Administration, it was sold in terms which frankly I think oversold the concept."[68]

The new, more realistic, more hard-headed version is being enunciated. Reagan's vision, 'grandiloquent', 'oversold' and now fit only for the history books, has been adjudged too fantastic. From here on, only the professional

[68]Martin Walker: "New Pentagon chief slims Star Wars defence role", *The Guardian*, 29 March 1989, p8

term is used. The themes of the new version, enunciated in the language of sober, technostrategic discourse, are the inadequacy of Mutual Assured Destruction, the need for the SDI alternative in the face of possible nuclear threats from countries other than the Soviet Union or from terrorist groups and technological advances which have had economic benefits (ie lower costs). One recent test is also detailed - it is another instance of the use of the 'Star' metaphor to refer to system components, this time 'Delta Star', the satellite vision system used to spot rising missiles. Despite the change of Administration, little in the programme has really been altered, discursively however, the (long-abandoned) non-professional, fantastic aspects of the plan are attributed to the departed President. A later report on budget proposals maintains this theme by referring to past plans as "earlier grandiose schemes" while lauding the newer system component, Brilliant Pebbles[69] (once, ungrandiloquently, called Smart Rocks).

TRUTH AND THE FUTURE

In the case of Star Wars/SDI, two of Foucault's traits of the political economy of truth - that it is actively demanded for political purposes and that the media are one of the apparatuses powerful in its production and transmission[70] - can be observed interacting with a third - the centrality of scientific discourse. The Democrats asserted that the proposal was fantastic and called on the most popular recent fantasy/SF film to assert the lack of truth in the proposal's strategic and technological vision. The Republicans rejected the ascription and (finally) called on science in the form of technostrategic discourse to assert the truth of their view. Neither side triumphed decisively in the discursive struggle, despite the potency of their discursive tools. 'Truth' is a particularly insubstantial commodity where the future is concerned. The regime under which 'true' statements about the future may be made has not really been delineated.

Consequently, this particular analysis of how the future is talked about has revealed that the claim of scientific discourse to primacy in speaking the truth is not unchallenged. When the title of an SF-fantasy film was used to dismiss Reagan's proposal as an ill-based fiction, it attached itself without the anticipated consequence, because the name evoked popular beliefs and

[69]Martin Walker: "Congress just keeps Star Wars project ticking over", *The Guardian*, 4 November 1989, p7.

[70]Michel Foucault : *Power/Knowledge*,p131

desires. This name however could not be accepted by the proponents of the plan both because it came from the opposition, and also because it lacked the ability to announce scientific feasibility. They adopted and attached 'SDI', a name redolent of technostrategic professionalism, but were unable to replace the popular, potentially dismissive one altogether. Now the two terms travel in tandem through the news stories, 'SDI or Star Wars' / 'Star Wars, President Reagan's SDI', the elements of fantasy, feasibility and probability becoming ever more intertwined. SDI is from the language in which truth claims can be made; Star Wars from a language in which they cannot. The first serves to legitimate political desires which can be expressed in the language of the second. Together they are potent, but the need for the sober, limiting technostrategic term is a reminder that SF, however useful, is an equivocally valued way in which to represent the future.

There remains a problem in the very specificity of the instance. Is Star Wars/SDI a unique example? It was certainly chosen for its unusual features, but is better characterised as special rather than unique. A subsequent example from the political arena of the same encapsulation of complex ideas in an SF title occurred early in December 1987. The head of the (US) House of Representatives Science, Space and Technology Committee, Robert Roe, speaking of an agreement on the pursuit of a joint US-Soviet mission to Mars, said that

> "he believed a common effort to reach Mars
> could shift the international focus on space
> from Star Wars to a mutual star trek."[71]

In Chapter Five I will examine some of the ramifications of the term 'star trek', but here merely point to the use of another metaphor, in opposition to Star Wars, to convey a very positive image of international cooperation.

Even so both cases are very precise and may represent no more than two (related) occasions when the primacy of scientific discourse in talking about the future was challenged. Two further aspects of specificity contribute to the difficulties of generalizing from this case. Firstly, technostrategic discourse is only a small sub-category of the scientific and its unavoidable imbrication with the political may make it quite uncharacteristic. Secondly, the non-contemporaneous nature of most of the source materials meant that, with only a few exceptions, it was not possible to examine how the future was

71 ----"Mars Mission" *The Guardian*, 4 December 1987, p7. (their capitalization)

talked about in film or television.

The next chapter will attempt to overcome these limitations by dealing with a more general case.

2: THE GREENHOUSE EFFECT and other ecological catastrophes

The previous chapter examined a very specific instance of a discursive struggle between scientific and science fictional discourses over the naming of a piece of military strategy. The traditional device of dismissing a scientific proposal by naming it science fictional was unsuccessfully when the name evoked popular beliefs and desires; and the privileged status of science within current 'regimes of truth' was challenged when an alternative name, drawn from professional technostrategic language was unsuccessful in dislodging the now popular SF name. The very specificity of the instance however may have meant that this example of the primacy of scientific discourse in speaking the truth about the future being challenged by fiction was uncharacteristic.

The present chapter examines a different area in which the label 'science' is explicitly used within TV and film to talk about the future. The particular future considered here is that of scientifically-based projections of ecological and demographic catastrophes, particularly as presented on TV. These are complex 'visions' of the future underpinned by more traditional scientific disciplines than would appear to be the case for military strategy. The arguments over their applicability and impact usually involve formally recognized scientists rather than techno-strategists, so these two particular features of the Star Wars/SDI case should not apply. Here perhaps the power of science to be seen to speak the truth even about the future will operate more fully. The main focus of the chapter - a *Tomorrow's World* special on the Greenhouse Effect - provides a detailed case-study of one such presentation of an anticipated catastrophe.

The Greenhouse Effect is currently the dominant projected ecological catastrophe. It is also the major example of a slippage in the way the future was talked about during the course of the writing of this dissertation.[1] At the

[1]The changes taking place in most communist countries at the time of writing provide another exception. I have not dealt with them because the situations are still fluid and television coverage is largely on a day-to-day basis in news bulletins. The difference between events of the research period and those of the period during which I have been writing are considerable. Documentaries are similarly awkward, as well as at times having explicitly announced the impossibility of speculating about the future. Relevant changes in strategic relations are premised on a different view of the future, but again the important consequences for my military chapters occur well after 1989. Those that were evident during the research period, are only as noted in Chapter 3 with the alterations to the Doomsday

beginning of the research (1986-7), the term and concern about it was current only in reasonably restricted scientific discourses and politically important only for environmental activists. It was not likely to figure in the statements of serving politicians, let alone Ministers. By 1988, all this had changed. The Prime Minister told the Conservative Party Conference that we were the trustees of the earth for our grandchildren and urged international co-operation to reduce the output of greenhouse gases (while refusing to sign commitments pledging when the UK would find it convenient to do so).

Television and science are involved in many ways: TV is a technology, itself a demonstration of scientific achievement; science is a common part of the content of TV; and TV is a major disseminator of scientific information - almost certainly the major populariser of science.[2] Of the sciences that form part of TV's content, the biological ones, especially medicine, are the most prominent - in documentaries, dramas and news programmes. In TV SF, science and pseudo-science (like *Star Treks's* 'warp drive') are also of course very evident. The concern in the present chapter is with only a segment of this broad and diffuse presence of science in the media. It deals mainly with explicitly identified science and technology documentaries and magazine programmes about scientific developments and to a much lesser extent with science in news and debate programmes.

The ability of TV science programmes to talk about the future is constrained in the first place by the ability of TV to talk about science, or more precisely by the practices and techniques TV has adopted to present scientific information and the practices and techniques which the scientific establishment has adopted in relation to televisual dissemination of scientific information. The relationship between the two institutions is uneasy, marked by equivocal valuation of the idea of popularisation on the side of the scientific establishment and by doubts about the communicability of scientific information on the televisual.

To investigate the specific characteristics of TV coverage of the scientifically represented future, I shall present a detailed analysis of the *Tomorrow's World* special on the Greenhouse Effect [BBC1, tx. 31 January 1989, transcript in Appendix B]. This has been chosen because it is both a

clock.

[2]See, for example, Greta Jones, Ian Connell and Jack Meadows: *The Presentation of Science by the Media,* Primary Research Communications Centre, University of Leicester, 1978.

sustained attempt to represent a scientifically-based future and a representation directed at a large audience. It thus addresses problems identified in the previous chapter which are central to the thesis as a whole: how scientific discourse talks about the future and how complex scientific ideas can be communicated through the use of popular modes of address. Despite its 'special' status, it is also a characteristic example of science on TV in general and of *Tomorrow's World* itself. If natural history programmes are excepted, then only *Q.E.D.* attracts as high an audience for TV science programmes - often exceeding eight million - as *Tomorrow's World.* In its regular form it is a weekly magazine programme, although there are occasional specials like the one under investigation. Its title announces its ostensible concern with the (immediate) future, but its usual content limits that future to one in which the technological objects and processes being displayed and announced to be under development or about to become available, can be expected to be more widespread. It is predominantly a technology rather than a science programme. Indeed, it was established specifically to address criticisms about the absence of technology on television made by the Department of Science and Industrial Relations and published in the Pilkington Report.[3]

Perhaps because of its populist presentation and its mode of address to the viewer as consumer, *Tomorrow's World* has been subject to considerable criticism by scientists and media analysts. Rachel Kerys Murrell asserts that

> "*Tomorrow's World* misinforms the viewer as to the real nature of the scientific enterprise."[4]

The programme's failings are regarded as typical of TV science, which is said to be

> "grossly afflicted by the Eureka! syndrome - as in the kind of 'fix-it', 'cracked-code' science characteristic of *Tomorrow's World,*"[5]

None of the criticism is concerned with the programme as a site where the future is talked about. Critics ignore the implication of the title even more than its producers do.

[3]Ibid., p39

[4]Rachel Kerys Murrell: "Telling it Like it Isn't: Representations of Science in *Tomorrow's World*", *Theory Culture and Society* , 4(1), 1987, pp89-106. p101

[5] Pat Sinclair: "Screen Science", *The Listener*, V.111, No.2852, 5 April 1984. p32

The *Tomorrow's World* special was a mix of live studio and pre-recorded location material, as is standard for its magazine format. All four of the 1988 presenters were used, with Judith Haan as the main studio-based anchor. The programme began with a short segment from Ireland establishing that there had been changes in the atmosphere. After that it considered changes in the weather both in the previous year and in a projected forty years into the future, before detailing the activity of long and short wave radiation and the nature and generation of the 'greenhouse gases'. This was made specific in the present by detailing the situation in Arbroath and then applied more widely and to the future by reference to General Circulation Models (GCMs) used as predictors of climatic change. There followed a botanical sequence with anticipated changes in agriculture and problems with silviculture, before a short piece on the possible consequences of a rise in sea level. The programme concluded with comments on some possible methods of alleviation: changing fuel dependencies and possible planetary self-regulation.

The first way in which future was 'shown' was a simulation. As an acknowledged fiction, this was most unusual, since dramatised material, with the exception of scripted biographies of scientific figures, is usually regarded as inimical to science programming. The *Tomorrow's World* sequence was legitimated by tying it to the empirical present through its being in the form of a weather forecast using the standard 1988 BBC format and one of the regular forecasters, John Kettley, while purporting to be for a hypothetical winter's day in 2030.

To avoid diminishing in any way the realism achieved by using the actual current forecasting format, there was no attempt to create a different costume for the forecaster, different graphics for the display or to posit different weather-effected activities for the hypothetical future viewer. Only the weather was shown as being different. It thus followed the line of minimal variation, which, as I shall continue to argue, is characteristic of non-fictional depictions of the future. My argument is that the presence of fiction in science programmes is a serious threat to the 'purity' of the discourse and in a scientific programme about the future, the taint would be a particularly worrying one, because it would elicit possible confusion between science and SF. While SF may be a potent populariser, it is not one with which the scientific establishment is happy. The Royal Society for instance, has warned how

> "some science fiction can grossly distort scientific possibilities and create much concern in a public with limited scientific literacy and so limited ability . . . to sort the plausible from the implausible or rank impossible. [. . .] responsible and publically intelligible comment from the scientific community should help to ensure that the extremes of distortion are at least to some extent curbed by the major publishers and film producers."[6]

The emphasis on being 'publically intelligible' is an acknowledgement both of the perceived distance between professional and popular language and the perception of a problem of communicability for TV science. The issue of the 'communication problem' will recur later in the chapter.

Piecemeal presentation, also notable in the programme's forecast for 2030, is related to this strategy of minimal variation. The segment focussed on just one prediction - changes in the weather. There was no attempt to integrate other predictions about changes brought about by the Greenhouse Effect. Although later in the programme there was reference to rises in sea level and consequent changes in coastlines, the map of Europe in 2030 used in the weather forecast differed not at all from the present day one. While this made comprehension much easier and did not pre-empt the later provision of information, it seems to be characteristic of televisual science-based prognostication to operate piecemeal. If both the weather and the coastline were to be shown as altered, it could risk an excess of apparent fictionality and a diminution in credibility. Similarly, an early comment on the role of fertilisers in generating greenhouse gases was not reiterated or developed when later reference was made to the increased need for farmers to use chemicals as Scotland warmed. Such piecemeal presentation may diminish the gravity of the depiction by ensuring that the future does not appear very different from the present.[7]

---

[6] The Royal Society: *The Public Understanding of Science*, (Report of a Royal Society ad hoc Group endorsed by the Council of the Royal Society), London, 1985. Para. 5.15, p23

[7] This is not peculiar to TV alone. A similar device can be seen in a newspaper article on rises in the water table in London as artesian water-using industry moves out projectingproblems this will cause in the next 20 years. It did this by concentrating on the single cause - rising artesian water - without paying any attention to the compounding influence of sea level rises caused by the Greenhouse Effect. Again piecemeal presentation (rising sea level stories

Arguably the most favoured way to represent the future without risking aspersions of fictionality has been by mathematically-based projections. These have now been augmented into computer modelling which allows the projection into the future to be emphatically designated 'scientific'. Not only does it carry the clout of the mathematically-based (with its connotations of abstract, pure, high science), but it can also produce good visuals technologically. *Tomorrow's World* has a predeliction for visual displays on a screen initially located within the larger TV picture, whether they have been derived by computer modelling or not. They are much 'better' TV (especially in terms of movement within the camera frame) than graphs or maps displayed on charts, as well as being more in keeping with the tenor of the programme through using the kind of technology the programme celebrates in so many of its stories. They allow a technological 'splurge', rather like the special effects in SF films, but justifiable through their scientificity.

The second way in which the future was 'displayed' in the programme was by this type of use of graphics to demonstrate computer modelling. There were seven different computer screen set-ups used in the Greenhouse Effect special. One was simply linked to a microscope to show the audience the shape of a coccolith, the being which it was hoped would be the self-regulating agent, but two at least were definitely referred to as computer models - both provided visuals based on maps of the world.

Criticism of science on TV, including the normal *Tomorrow's World* magazine, claims that it neglects science in process or subject to disagreement within the scientific community.[8] This was not the case in this programme. The sequence devoted most strongly to computer models showed the GCMs predicting atmospheric change and also used them in the programme to outline temperature changes. The special admitted the existence of disagreement between the models (though it showed the results of only one) as well as the existence of two important variables not included in the models. Admittedly, these revealed inadequacies were rapidly minimised by reference to an area of agreement between the models and examination of work aimed at clarifying the action of the absent variables. Nonetheless, some acknowledgement was made of the tentative and disputed nature of the data. It was not however suggested in any way that such data was fictional, speculative or not significantly different from SF stories. A computer model

were published elsewhere) serves to minimise the threat.

[Paul Brown: "Rising water threatens buildings", *The Guardian*, 3 November 1989 p2].

[8]e.g. Carl Gardner and Robert Young: "Science on TV: A Critique" in Tony Bennett et al eds.: *Popular Television and Science*, London, BFI, 1981.

may be wrong, it may be limited, but it is never acknowledged to be a work of fiction.

Closer to fiction were the instances of verbal descriptions of future conditions, over visuals showing the related present. They were, after all, manifestly telling us stories. Howard Stableford standing in a field on a Scottish farm saying that the farmer may get two crops of raspberries a year or be growing French beans and maize in 2030 is unavoidably narrative - but the story is dull. When the story becomes more exciting, even alarming, as with the increase in sea level, the indisputably 'scientific' is reinserted. It is worth examining this example in greater detail in order to consider the procedure by which these scientific claims are discursively produced.

After the segment on the changes in agriculture and the problems with silviculture in Scotland, the programme returns to the studio where the metaphor 'to undergo a sea change' is used to introduce the new topic. The new visual component is a thermometer in a beaker of liquid. Maggie Philbin lifts the thermometer to indicate liquids expanding when heated. Even for as non-specialist a programme as *Tomorrow's World*, this is a particularly banal visual, but it is also undeniably science-based. The next visual however is of a tropical island, as the voice over tells us that nations such as the Seychelles and the Maldives could disappear and the Nile Delta be inundated. We do not however stay with this visual or this point. The story is brought back to the UK and the studio as the visual shifts to a relief map of the Tay Estuary beside which the presenter stands. This is a low-tech visual, but it serves to reduce any anxiety before the cut to Howard Stableford and the problems rising sea-level will cause in Scotland. The visuals which accompany his story of the increased chances of flooding in Perth are mainly of stonework showing previous flooding marks which serve to make this a story of recurrent, not new, danger. The statement that the cost of preventing flooding and coastal erosion may be too high to be met and that "some areas of this country too will simply disappear" is delivered directly to camera with a very misty long shot of Perth held in the background.

This information is potentially very alarming. In a political rather than a scientific programme this would be subject to investigation and some kind of emotionally-charged response would most probably be sought. Emotion has no place in a scientific programme like this, so the statement must be defused or abandoned. No extra visuals can reduce the impact, so the immediate topic is abandoned. No time is allowed for the viewers to feel apprehensive or to

consider whether 'real world' action is being taken in this regard. The programme immediately returns to the studio, to Judith Haan, the most authoritative of its four voices and to the computer model map of the country in 2030. The map, she tells us, will not look very different, but, (and it is now voice over the map in close-up) low-lying areas "may need extra defences". A longer range prediction is given that by the end of the next century the Thames Estuary could be permanently flooded, although this is not said quite explicitly. The Thames Estuary had been one of three low-lying areas previously mentioned, permanent flooding could affect "many" of them. Again the alarming information is given directly to camera in close-up; again specificity is avoided (the reverse of what would be the normal story-telling device); and again there is an immediate cut. This time the cut is to modes of alleviation through different energy generation methods. This tension between the scientific and the story is common as the demands of 'good TV' conflict with the requirements that 'good science' be unemotional, low-key and objective.

The different demands of 'science' and 'story' or, more properly 'narrative' have frequently been noted. French theorist, Jean-Francois Lyotard, opposes the scientific and the narrative as two kinds of knowledge, the first of which is concerned with denotative statements, has powers of legitimation, requires experimental verification and is linked to politics.[9] It takes primacy over the second, which is connotative, a traditional form of knowledge, related to ideas of conviviality and concerned with competence.[10]

The tension noted above can be seen as one manifestation of the contestation Lyotard describes between scientific and narrative knowledge.[11] He comments, with apparent amusement, on how when scientists appear on television "they play by the rules of the narrative game";[12] they recount an epic of discovery, because in this context scientific knowledge alone cannot achieve the legitimation as truth it requires. If this is the case, not only does the equivocation around fiction evident in the weather forecast and the status of computer models, as well as the rejection of 'good' narrative practice just noted, make sense, but several other criticisms of

[9]Jean-Francois Lyotard: *The Postmodern Condition: A Report on Knowledge*, trans. Geoff Bennington and Brian Massumi, Manchester, Manchester University Press, 1984. p8

[10]Ibid., p9, 19-23

[11]Ibid., p7

[12]Ibid., p27-28

science on TV come into clearer focus.

Yet not even Lyotard is completely happy with the separation of scientific and narrative knowledge. He comments that the recourse of science to narrative demonstrated by the scientist on TV may be inevitable.[13] Nonetheless, his general perspective is to see this as a relic of science's past. This is not however a position adopted here. While agreeing that scientific discourse attempts a strategy of distancing itself from narrative, I do not accept that it is successful in doing so. Narrative is inescapable; present in scientific explanation and photographs as well as in epics. Indeed, Fredric Jameson refers to it, an

> "all-informing process . . . the central function or *instance* of the human mind".[14]

The distinction between the narrative and the scientific is one of convenience, like that between fiction and non-fiction, it rests on accepting the givens of scientific discourse.

One of the most frequent comments made about the style of presentation of science programmes on TV is that they are structured like detective stories. Roger Silverstone sees it as unsurprising that something so readily comprehensible is used to frame the supposedly incomprehensible science, since

> "nothing is more likely to become the subject of an heroic tale or a mystic fantasy than that which is neither understood nor accepted as necessarily benevolent."[15]

In other words, **because** it appears uncertain and potentially threatening, it is presented in a form which renders it safe and tidy. This should apply particularly strongly to science and the future. Recently, the choice of the detective genre has been criticised as one of the devices leading to the presentation of science as resolving uncertainty and solving problems. Anne Karpf, for instance points out that it

> "retrospectively frames the issues from the point

[13] Ibid., p28

[14] Fredric Jameson: *The Political Unconscious*, London, Methuen, 1981. p13

[15] Roger Silverstone: *Framing Science: The Making of a BBC Documentary*, London, BFI, 1985. p171

> of view of its outcome: the false starts only serve to reinforce the correctness of the eventual solution."[16]

Yet in the early 60s, the detective story had been explicitly suggested as a desirable form for televised science. James McCloy, a BBC TV science producer, had pointed out the importance of creating suspense involving intellectual rather than emotional tension.

> "This engagement of the curiousity of the audience so that they are led step by step through the unraveling of a scientific argument adopts a kind of detective story technique."[17]

These comments all emphasise that the form is imposed by television, or more widely by popularising media, onto scientific information. However, Silverstone again points out, the discourses are in conflict

> "in relation to science there is a dramatic disjunction between the scientist who, for whatever political or intellectual reasons, qualifies, refuses final judgement, denies his own significance, and the television presentation of him which is seeking certainty, conclusiveness and for the individual scientist to be hero or villian."[18]

In this conflict, television triumphs in form at least, supporting Lyotard's contention.

Much of the televisual success of the detective form rests on the question of certainty. TV science is presented as unproblematic; scientists are presented as certain of their 'facts'. Even in post-modern times explicit uncertainty makes TV science producers uneasy.

> "Science facts are fluid and negotiable,but this rarely appears in the media, and when it does appear, it is suggested that certainty will shortly emerge".[19]

---

[16]Anne Karpf: "Shibboleths and Ships in Bottles", *The Listener*, V.111, No.2851, 29 March 1984. p9

[17]James McCloy: "Science on Television", *The Journal of the Society of Film and Television Arts Ltd.*, No 14, Winter 1963-4, pp11-13. p12

[18]Silverstone: *Framing Science*, p103

[19]David Edge quoted in Anne Karpf: "Shibboleths and Ships", p9

The problems with scientific uncertainty in the *Tomorrow's World* special are striking. The presenters repeatedly have to report areas where knowledge is partial or where all that is known is that research is needed. Their unease with this is evident. There is never an admission of uncertainty without an immediate reference to clarification. **Twice** a presenter closes a segment with such an admission only to have the next presenter begin her section with the phrase "One thing we do know, though . . ". On a third occasion, a presenter winding up a section referring to changes being both good and bad, continues "but one thing's certain . . ". On two further occasions when it is admitted that something is unclear, the audience is reassured that international studies have been set up on the matter. One of these, the International Cirrus Experiment, we are told, will provide data to be added to computer models so that "the **true** climatic effect of clouds [will] be known" [emphasis mine]. It might be thought that since what is being dealt with is the future, and hence the explicitly unknown, a certain degree of uncertainty might be permissible. What seems evident however is that this is very much not the case. The combination of the view of science as certainty and the perception that anything other than clarity is a failure of exposition appears to outweigh both a commonsense view of the future as unknown and a sophisticated view of scientific knowledge as fluid and negotiable.

Another aspect of the disjunction between science and the scientists on the one hand and the televisual presentation of them on the other appears somewhat in contrast to the insistence of televisual science on certainty. Rachel Kerys Murrell concludes her detailed examination of *Tomorrow's World* by noting

> "a) the mystification of the scientific process (as complex, depersonalized,inevitable etc.) . . [and] b) the contextualization of technology in terms of inoffensive 'everyday life' ".[20]

The two conclusions point in different directions, yet both can be demonstrated in the magazine and in the special. The mystification of scientific procedure can be seen in the reference to a gas chromatograph as an "instrument of quite unimaginable sensitivity". Technology is made to appear both ordinary and beneficial by the use of 'homely' applications and

[20]Murrell: "Telling it Like it Isn't", p102

devices and by the particular people used as presenters, who, as both Murrell and Sinclair point out, are non-scientists and 'on our side'.[21] Despite the differences, they both serve to emphasise the separation between science and what ordinary people can comprehend. Scientific processes can be mystified since they are incapable of being made comprehensible, while technological artefacts can only be explained by analogy with the already known.

The us/them mentality which locates the presenters together with the viewers as "interested but unsophisticated"[22] is established from the beginning with reference to "most of us" having noticed a warmer winter. Time is often measured personally: forty years is "well within many of our lifetimes"; and effects will be felt "for generations to come". There are several clues as to the 'us' the programme constructs: the weather forecast, for example, is for a population of mobile, middle income holiday makers, skiing in north-eastern Scandinavia, or taking a mid-winter break in Iceland; the example of current action to prevent coastal erosion surrounds a golf course; great attention is devoted to alternate car fuels - none to improved public transport. In terms of the kind of scientific knowledge anticipated in the audience, botany leads, then geography, with physics last on the list.

'Them', the scientists and researchers, are barely present except for one named and located botanist. Gardner and Young have noted how very privileged scientists appearing on TV are. Not only is the interviewer rarely shown, making the speaker appear unchallenged and the issue uncontroversial, but on the rare occasions that scientists are shown to be disagreeing, they do so in separate to-camera sequences rather than in face-to-face challenges.[23]

It is extremely unusual for science programmes to be overtly partisan even when they admit debate. This reflects the general practice for the programmes to be made by people with televisual, but without scientific, expertise, and therefore both deferential to 'experts' and unwilling to involve themselves in evaluating debates. This latter may be the result of their having a naïve view of science as revealed truth not amenable to interrogation by lay people. TV's world of science appears a remarkably tranquil place where knowledge is progressively uncovered and politics something that enters from outside. As Gardner and Young put it,

---

[21] Ibid., p94 and Sinclair: "Screen Science", p34

[22] Gardner and Young: "Science on TV", p178

[23] Ibid., p177

> "Non-fiction TV, of which science programmes are the paradigm, claims to represent the facts. Therefore any ambiguity in the representation is seen as a failure of exposition. Science, of course, is defined by the attempt to eliminate ambiguity."[24]

Cutting across the vaunted 'objectivity' of science and the distinction of scientific and narrative knowledge, is the use by scientists themselves of metaphors of varying levels of generality. Despite Foucault's statement about the need for concepts to rid themselves of metaphor and imaginary content before they can be accepted as scientific [quoted in Chapter One], the desired purity is rarely, if ever, attained. Metaphor may structure whole dominant paradigms of scientific theory. Stephen Jay Gould has a short essay on the consequences of using the metaphor of a ladder for evolutionary change; he prefers the metaphor of a bush.[25] Metaphor can also be used to convey details to the less informed, necessary because, as was argued earlier, scientific language, the very model of an authoritative professional language, has a status based on exclusion.[26] As was also pointed out in Chapter One, metaphors are particularly useful in communication between speakers of a such a language and the general public.

The 'Greenhouse Effect' metaphor is of a middle level of generality encompassing a significant disciplinary diversity. Examining its operation here demonstrates some of the ways in which metaphors have particular discursive effects. David Edge has examined the operation of technological metaphor noting how the metaphor is taken up if it helps eliminate confusion, but that it brings with it certain new questions and predispositions to particular answers.[27] A greenhouse is a simple, reasonably common device, useful in this case as an everyday object which can be used metaphorically to explain the operation of the atmosphere on the sun's radiation. In her outline of this operation early in the *Tomorrow's World* programme, Maggie Philbin also uses the metaphor of a 'blanket around the earth', but although not uncommon, it is a less useful metaphor, in part since both a greenhouse and

---

[24] Ibid., p179

[25] Stephen Jay Gould: "Bushes and Ladders in Human Evolution" in *Ever Since Darwin: Reflections in Natural History*, Harmondsworth, Penguin, 1980, pp56-62

[26] Scott L. Montgomery: "The Cult of Jargon: Reflections on Language in Science", *Science as Culture*, No.6, 1989, pp42-77. p43

[27] David Edge: "Technological Metaphor and Social Control", *New Literary History*, 6(1), 1974-5, pp135-147. pp136-7

the atmosphere share the characteristic 'transparency' which a blanket lacks. However, metaphors are not neutral devices which can be deployed without altering their field of operation. Their literal referent influences their metaphoric deployment - as David Edge has noted.

> "As the metaphor begins to 'bite', cognitively, it brings with it attitudes appropriate to its literal referent."[28]

A greenhouse is used to grow things, so the greenhouse metaphor ensures that major concentration in this programme as elsewhere, is devoted to the question of what crops will grow where. A segment of the programme is even set within an actual greenhouse full of tomato plants. The long-standing practice of commercial plant growers using carbon dioxide enrichment to enhance growth in their greenhouses is referred to by Maggie Philbin as "if you like, an artificial greenhouse effect", certainly an extreme indication of the process of naturalization this metaphor has already undergone.

Because greenhouses are generally regarded as beneficial, enabling 'luxury', out-of-season crops to be grown, the metaphoric use of the term to describe a potential catastrophe is decidedly complex. Part of the effect of the metaphor seems to be to diminish the sense of danger in the audience. Extra crops of raspberries in Scotland sound rather desirable. The metaphor may be at least partially the cause of more time earlier in the programme being spent on agricultural variation than is spent later on sea-level rises. The metaphor after all lacks relevance to this particular manifestation of the problem.[29]

Less than a year after the *Tomorrow's World* special, *The Money Programme* also devoted an entire programme to the Greenhouse Effect (BBC2, tx. 12 November 1989). The differences between the two programmes were considerable and provide an opportunity to examine the extent to which disciplinary framing (*The Money Programme* is an economic, not a scientific,

[28]Ibid., p141

[29]Again this is not specific to television. The dominance of the positive ramifications of the metaphor was strongly demonstrated by a front-page newspaper story announcing that, thanks to the Greenhouse Effect, "Britain could be the new Sunshine State". The thirteen paragraph story mentioned farming 'booms' and the enjoyment of a semi-Mediterranean climate. It was not until the ninth paragraph that any negative effects for Britain (droughts and thunderstorms) were mentioned. [Geoffrey Lean and Jan Sinclair: "Britain could be the new Sunshine State", *The Observer*, 26 November 1989 p1]

magazine) influences the televisual treatment of a scientific story. The differences were presumably also influenced by the elapse of time during which the population could be assumed to have become more familiar with the phenomenon and hence need less basic information, as well as the expectation of a very different (and much smaller) audience. The main characteristic which *The Money Programme* shared with *Tomorrow's World* was the privileged treatment of the speakers; interviewers never appeared, 'experts' were unchallenged and if disagreement occurred, it was between separate sequences, not face-to-face.

The programme concentrated on the cost of reducing carbon dioxide emissions, showing the operation of various cost-benefit analyses and presenting a comparison between activity - or inactivity - in Canada, the US and the UK. Much less time was devoted to detailing the future than in *Tomorrow's World*; probably because the future likely as a result of the Greenhouse Effect could by this time be assumed to be shared knowledge. There was at least one use of computer modelling - to work out the fuel cuts necessary to meet the target set at the Conference on the Changing Atmosphere held in Toronto in June 1988, of a 20 per cent reduction in greenhouse gas emission by 2050. There were no questions of certainty or uncertainty during the programme, despite frequent use of specific data, such as a 14 per cent greater fuel efficiency possible from design changes to cars, or anticipated substantial cuts in petrol consumption if the cost were between £2.50 and £3.00 a gallon. The scientific knowledge on which the programme was based was one with a particularly strong ability to claim to speak the truth - mathematics.

The Money Programme, unlike *Tomorrow's World*, adopted a quite partisan approach - presenting the issue as involving political and economic will and demonstrating Britain's lack of it. The section of Prime Minister Margaret Thatcher's November 1989 address on the issue to the United Nations which was shown in the programme, was the only instance when any explicit reference to science was made (and it was to an alleged lack of science-based information). The programme as a whole opposed her stance. Even so, the extract from Mrs. Thatcher's speech exemplified non-scientific discourse on the subject. She concentrated on the present, making only minimal reference to any posited Greenhouse future. It was a political speech and thus lacked the privileged position with regard to current regimes of truth that 'pure' scientific and mathematical discourses have, but it did not call on them for legitimation, as might have been expected. The future in most

contemporary political discourse is, like this, primarily that which is not spelled out, but can be implied, from the consequences of immediate causes of concern.

The comparison has demonstrated some of the restrictions on popular scientific TV coverage. There was not the same pre-occupation with certainty when the issue was within an economic frame. It was also possible to refer to, and admit the centrality of, political decision-making. Even more, the programme was itself partisan. The main difference thus was that an economic programme was able to call on science and politics, in addition to economics, while the science programme operated within a more restricted range.

Programmes about the Greenhouse Effect are only one type of a particular sub-category of TV programmes talking about the future - those that examine predictions of possible eco-catastrophes. As was evident with *The Money Programme* referred to above, not all of these are scientific, though it is the scientific ones that are the main concern here. An examination of the coverage of some other predicted eco-catastrophes should make it possible to identify the characteristics of this way of talking about the future, as well as furthering the investigation of the primacy of scientific discourse in this area.

It seems possible that fear of the SF taint has been especially influential in structuring debate over the dangers of another scientifically-predicated future disaster - one involving genetically engineered organisms. A potential eco-catastrophe following the escape of such organisms into the environment has concerned both environmentalists and the companies intending to profit through new, patented plants, animals and bacteria. Reporting on it is bound not just by the difficulties of explaining complex scientific procedures, both in the engineering and the safety devices, but also by having to avoid the dangers of sounding not just like SF, but like the more extreme horror-story kind. The constraints seem particularly evident on TV reporting. A 1987 editorial in *The Economist* began with a short fantasy set in 2087 involving the escape of six genetically engineered beings with "the bodies of snakes, the metabolisms of ferns and the brains of men" which thirty years later had exterminated the human race,[30] before more mundanely discussing the benefits and the moral dilemmas involved in genetic engineering. The accompanying article eschewed all such fantasy, but is is noteworthy that

30 -: "Tomorrow's Animals", *The Economist,* V.304, No. 7511, 15 August 1987, pp11-12. p11

once again a scientifically-based story appearing in an economic context is less restricted in scope, having a greater range of referents.

Tomorrow's World dealt briefly with genetic engineering during the three years of the study - usually in short to-camera pieces during the "This Week" segment. This regular three to five minute slot in each magazine programme provides a digest of the leading scientific stories of the week, giving the programme both topicality and a place for dealing with stories which are unsuitable for more extended treatment, either because of their unavoidably political content or through the abstruseness of their science. In 1987 there were "This Week" reports on the US Patents Office giving the first patent for a genetically engineered higher form of life (an oyster), and the transfer of a beetle-resistant gene from beans to tobacco plants, as well as two longer items on AIDS which included references to genetic engineering in attempts to develop a cure. The only reference to possible problems with escaping organisms came in another "This Week" item which referred to genetically engineered viruses which would attack insects and then self-destruct, so that escaping would not be such a problem.

In the *Tomorrow's World* programme screened 21 November 1989, there was a longer item on that part of the Green Bill proposed in the Queen's Speech which was concerned with genetic engineering. Mentioning that there had been thirteen approved releases in the UK so far, the two presenters (Judith Haan and Howard Stableford) referred to problems of possible cross-overs from desired plants to weeds, if the genetically engineered viruses or other releases escaped.

One of the responses to the difficulties of discussing the whole area has been to concentrate on plants and micro-organisms rather than on animals, this may have more to do with avoiding the greater risks of emotional responses to stories about the latter than because of the prevalence of research on the former. Stories all deal with current research. To the best of my knowledge there has been no attempt by TV science programmes to provide any picture of the future as altered positively or negatively by genetic engineering. For example, there has never been even a picture of farming without the threat of frost to crops in the wake of possibly the most famous of the genetically-engineered organisms - the 'ice-minus' bacterium patented as Frostban. The risk of sounding alarmist or approximating horror-SF (both definitely non-scientific) seems so great that genetically engineered organisms can be discussed only in the present.

Documentaries on population growth, the need for birth control and the impossibility of feeding the world's future population were common in the late 60s and the 70s, when over-population was the dominant future eco-catastrophe envisaged. These are now quite rare, and virtually absent from TV science. The sole *Tomorrow's World* item noted during the research period was within the "This Week" segment screened on 21 May 1987, where Judith Haan announced that on the eleventh of July that year, the world population would pass five billion. According to UN figures, she added however, population growth was slowing down and food production going up. There was no indication whether this meant that the potential catastrophe, once of such televisual prominence, had been averted, supplanted or displaced.

Looking more widely at TV coverage, it seems that the anticipated catastrophe consequent on over-population has indeed been displaced, but instead of being displaced temporally into the future when it would affect the whole world, it has been displaced spatially in the present, where it is affecting other countries. Furthermore, it has not been displaced as a single unified catastrophe, or even as several related ones. Instead, using a device similar to that described earlier this chapter, its potential to alarm has been reduced by presenting it in a piecemeal fashion. The various African famines, the various cities with 'exploding' populations and the various countries where poor education systems and religious beliefs hamper fertility control programmes, all provide separate, displaced stories as different political, economic and charitable (but rarely scientific) interventions bring them before the TV cameras. They are shown as problems for the present, and the future, if it is not left solely for construction in the imagination of the viewer, is depicted as much the same as the present, just happening to more people.

Only when interaction is postulated between these displaced stories of over-population and inadequate resources and those of the dominant eco-catastrophe, which now is the environmental one increasingly encapsulated as the Greenhouse Effect, is a global dimension added and population growth again represented as part of the catastrophic future. Agricultural variation is seen to intensify African famines; Latin American deforestation not only intensifies the Greenhouse Effect but increases the movement of indigenous populations to overcrowded cities; the rise in sea level will be particularly dramatic in Bangladesh and a very poor, densely populated country will have less space and less agricultural land. (The last of these has only received print, not TV, coverage.)

There is rarely, if ever, direct reference to past projections of eco-catastrophes (such as the arrival of a New Ice Age) that have not eventuated, or have not done so in the projected time-scale. Because of the seriousness of eco-catastrophes, their treatment is not subject to one of the common devices used to contain the potential fictionality of past scientific projections. This is the device, used occasionally on *Tomorrow's World*, of including a self-reflexive item commenting on earlier episodes or on products it has previously extolled. For example, an item transmitted on 24 October 1989, examined some of the changes in bicycle design featured in the previous ten years, revealing problems including maintenance difficulties and excessive costs. Shots of more amusing, less serious predictions are almost always included to point out the 'quaintness' of past visions of the future and self-deprecating comments about 'our' past naïvety are quite common. Such items are not evident for past projected catastrophes, since it is not possible to comment on their 'quaintness' and reflexive items would then only be able to point out how science had been 'wrong'. (Like admissions of uncertainty, this is not something that televised science programmes do in the absence of immediately being able to disavow it as the problem is now corrected or certainty approaching.)

The medical pandemic of AIDS provides another example of a science-based catastrophe story that should generate particular representations of the future, but does so only under severe constraints. The constraints here are not just the ones already noted, but also those introduced through the moral dimensions seen as intrinsic to any discussion of sexually transmitted disease (and intensified by the early concentration of the disease in the West among male homosexuals) or drug abuse. The demarcation of science programmes from social issue ones, which has been institutionalised by the BBC in particular through programme specialization (for instance social impact stories are regarded as inappropriate for *Horizon* while suitable for others like the now defunct *Brass Tacks*[31]), operates most strongly here, despite the increasing difficulties of maintaining this separation on medical subjects.

AIDS-derived futures are rarely projected past 2000 and are almost entirely statistically based. They depend on projecting some particular percentage of the population as carriers of the HIV virus or suffering from 'full-blown' AIDS. From this may be derived various crisis stories of extra demands for hospital beds or hospice places or NHS funding. All of these are carried in

[31]Gardner and Young: "Science on TV", p174

social issue programmes or news broadcasts. Science programmes only carry stories on AIDS research and the development of cures and vaccines. *Tomorrow's World*, for example, deals with AIDS stories by using large models of proteins or receptor cells or other such highly abstract visual material, never through reference to sufferers or modes of transmission. It may be that because death is seen as the inevitable end to any individual AIDS story other than a scientific one, the idea of an AIDS-derived representation of the future is viewed as peculiar.

It is possible that some of the difficulties in presenting a scientifically-based view of an AIDS-derived future comes from the involvement of what I intend to term the 'personal mode' of thinking about the future. The word 'mode' is used because the practice is evident across several discourses though characteristic of none in particular. In the personal mode, the future is talked about familially in terms of possible or probable situations for one's descendants and more generally through the 'generations to come' formulation. The personal mode is not common in science, it is more characteristic of narrative knowledge, but it is evidenced in the *Tomorrow's World* special's reference to the future forty years from now as "well within many of our lifetimes".

Eco-catastrophes all involve threats to generations to come, but this is discursively constructed as applying generally, to populations rather than individuals. Greenhouse Effect stories, for example, are about the coastline being eroded, rather than the particular threat to a member of the family's beachside house. AIDS stories, when they are not the very abstract, like those involving models of T-cells or statistics, are about the threat to individuals and as a consequence are rarely covered by popular science programmes. In an AIDS story, the next few years could be described as 'after the death of a number of us', so perhaps it is not surprising that this future is rare in TV programmes aimed at mass audiences.

The speculation may be congruent with the suggestion of Arthur and Marilouise Kroker that, as a result of AIDS in postmodern America, history (not science) becomes

> "*the* reality-principle as everyone is compelled to live in fear of their own sexual biographies."[32] [italics in the original]

[32]Arthur and Marilouise Kroker: "Panic Sex in America", in Arthur and Marilouise Kroker (eds.): *Body Invaders: sexuality and the postmodern condition*, London, MacMillan Education, 1988. p14

The extent to which this perception can be supported, especially to the UK, is uncertain, there is as yet no evidence of it in representations on TV. If the Krokers' suggestion is valid, it may be that the 'reality' of AIDS has forced an accelerated concentration on past encounters and relationships, to the exclusion of the future.

This apparently slight concern with an AIDS-derived future may also, or alternatively, be explained by the insistence that AIDS is a disease of the demonised Other and hence neither within 'our' present nor future. In this latter type of representation, the AIDS catastrophe, like the other demographic ones, is displaced, even if it is to a place which is psychically rather than geographically, on the margins. There still are attempts to locate it geographically 'out there' (in Haiti, in Africa, in California, in Edinburgh), though as Susan Sontag has pointed out, "untramelled intercontinental air travel" gives actuality to modern spatial interconnectedness and makes nonsense of the idea of geographic isolation of people, goods, problems - or diseases.[33]

Sontag has suggested that the "Apocalyse is now a long running serial" which seems to be running in slow motion because (we think) we know the outcome given all the information and projections available to us.[34] The apocalyse she refers to links nuclear, demographic, ecological and medical catastrophes concentrating on what are, admittedly, substantial shared characteristics. It does not apply to the non-fictional treatment of them in TV programmes, especially scientific ones. There catastrophes are separate and some, like AIDS, may recede into the past, but do not move much into the future.

This chapter has concentrated on non-fiction in its examination of the way scientifically-based, ecologically catastrophic futures are dealt with on TV. It will now turn briefly to some TV dramas and fiction films dealing with similar catastrophes to contrast so-called 'scientific' non-fictional coverage with some fictional treatments.

It has been too short a time for there to be a substantial body of film or TV fiction incorporating aspects of the more recent projected catastrophes discussed earlier. The visual fictions of ecological and demographic

[33]Susan Sontag: "AIDS and Its Metaphors", *The New York Review of Books*, Vol. XXXV, No. 16, Oct 27, 1988, pp89-99. p98

[34]Ibid., p99

catastrophe that do exist come predominantly from the 70s, before the wide use of the term 'the Greenhouse Effect' and when anxiety about manipulating nature manifested itself more in concerns about eco-catastrophe ,and advocation of zero population growth. Such films and TV programmes envisaged overpopulation (e.g. *ZPG* (1971), *Soylent Green* (1973)), the escape of various biological hazards (e.g. *Doomwatch* (BBC, 1970-72)) or some bacteriological catastrophe (e.g.*The Survivors* (BBC, 1974-77)).

Eco-catastrophes generally were very rare for most of the 80s and only at the end of the decade did the occasional reference to them begin to be found again in mainstream films (*Slipstream* (1989), *Millenium* (1989)). Future demographic catastrophes are now shown only as incidental consequences of whatever is the main motivator of the fiction, as, for example, the depopulation evident in post-nuclear holocaust fantasies.

As far as temporal location is concerned, Greenhouse Effect fictions are beginning to be set in the future; AIDS-based ones, like *Longtime Companion*, are not SF and seem generally to be set in the present;[35] and specifically demographic ones no longer seem to be being made at all.

The most immediate contrast between the non-fictional and fictional portrayals is that the latter show few signs of the piecemeal approach characteristic of the former. Non-fiction science programmes not only present the various catastrophes separately, they often present various elements of them without showing how they connect. The piecemeal presentation referred to as inhibiting the *Tomorrow's World* Special's depiction of simultaneous climatic and coastal changes was representative. This is not usually the case with fiction, which is more integrated, frequently presenting several catastrophes interacting with each other and with other issues. Of the films of the 70s, *THX-1138* (1970) depicts an enclosed, rigidly-structured, overpopulated world; *Soylent Green* shows a world where industrial development has brought about an environmental disaster with over-population and food shortages; and in *ZPG* pollution has combined with over-population to create a situation in which there must be a thirty year moratorium on having children. *Silent Running* (1971) is set on one of the space-ships on which grow the sole surviving forests, though whether there are no longer forests on earth because of over-population, environmental problems or some other catastrophe is unclear. *Logan's Run* (1976) deals with over-population obliquely by positing some catastrophe which has

[35]After the end of the research period, an AIDS-predicated future-based TV drama, *Yellowbacks*, was broadcast (BBC1 *Play on One*, tx. 30 August 1991). AIDS was not however named; an unidentified, sexually-transmitted disease 'substituted'.

caused people to shelter in domes which would be impossibly crowded were people allowed to live after they turned thirty. In all of them the lead characters' problems are resolved only by escape, though in both *Soylent Green* and *Silent Running* it involves eventual suicide. All of them are basically law and order stories because the catastrophes have effectively ensured totalitarian societies,[36] although the law is eventually evaded. More recent films, such as *The Running Man* (1987), *Robocop* (1987) or *They Live* (1988), frequently present crowded cities and totalitarian societies, or ones with serious law and order problems, but do so without a specified basis of overpopulation.

Eco-catastrophe was not only presented in tandem with over-population. *No Blade of Grass* (1970) posited a virus which destroyed crops and depicted a depopulated future. The BBC TV series of the mid-70s, *The Survivors*, also depicted a depopulated world in the aftermath of a biological catastrophe. Several of the post-holocaust fantasies are so imprecise about the nature of their precipitating events that they might equally be nuclear, conventional or bacteriological war or even non-military catastrophes. (Cynically, it might be suggested that films based on a depopulation premise require smaller casts than do over-population ones.)

Fictional deployment of the Greenhouse Effect is only just beginning. *Slipstream* outlines an imprecise ecological disaster in a voice-over before the credits.

> "By the end of the century, Man's destruction of the Earth's environment turned the forces of Nature upon him. There are many stories about the converging earthquakes which split continents apart mixing civilisations together, about the floods which buried the cities and about the emergence of a river of wind called the Slipstream."

Most of the scattered and presumably decreased population in the film survive by scavenging. *Millenium*, slightly more precisely, envisages a decaying future world suffering the final effects of centuries of environmental pollution. Publicity for the sequel to *Highlander* (1986) announced that it would be set in 2020 and depict

> "a dark, oppressive time when there is no

[36]This may not apply to *Silent Running* since so little is learnt about earth-based society.

> ozone layer left. Science comes to the rescue with a substitute ozone which has to be sprayed into the upper atmosphere."[37]

In most of the contemporary films, the eco-catastrophe only serves as a background to differentiate a reasonably standard narrative and make it more contemporary. Nonetheless, they still provide a more sustained picture of a future structured by ecological catastrophe than is the case with most of the TV science programmes. While it may be possible for viewers to construct their own compound catastrophic futures from the information provided in a few week's TV programmes - perhaps a decline in planetary surface area intensifying current refugee problems as certain microstates literally disappear and low-lying countries find themselves substantially smaller - it seems not at all possible for this to be referred to directly on non-fiction TV, especially in science programmes.

One way in which films and TV programmes talk about the future is in predicting catastrophes by extrapolating from current evidence. This chapter has examined the presentation of several eco-catastrophes to find how the catastrophic future is presented both fictionally and non-fictionally. The eco-catastrophes concentrated on were the Greenhouse Effect, which it was argued is currently the dominant one, the possible escape of genetically-engineered organisms, the AIDS pandemic and, from the past, over-population. The framework within which these eco-catastrophes were investigated was an examination of the ways in which TV science programmes acted to maintain their claims to speak 'truthfully' when talking about the future to a lay public. The inquiry into fictional portrayals was complementary to this.

The most important characteristic of science as it is popularly presented on TV, appears to be its concern with certainties. Even when the subject is the future and certainty thus impossible, the strength of the desire to achieve it is such that uncertainty must be repeatedly contained. Addressing a popular audience exacerbates this. Doubt and disagreement, which add to the uncertainty, may be voiced quite readily within professional language, but it appears that when things are simplified to become comprehensible to the lay public, uncertainty is minimised. This is even evident, as the chapter has shown, when the subject is as contentious as the likely occurrence and effects

[37]John Vidal: "Eco Soundings: 20/20 vision", *The Guardian*, 17 November 1989, p27

of ecological catastrophes. Nonetheless, perhaps in compensation for the constraints of appearing certain in addressing a popular TV audience on scientific matters, televised science is unable to avoid incursions of what Jean-Francois Lyotard has termed 'narrative knowledge' as the demands of 'good TV' and the desire to communicate clearly contest with scientific 'purity'.

A characteristic related to the pursuit of certainty is the desire to appear objective, or at least dispassionate (again much more evident in addresses to the general public than within scientific institutions themselves). This seems to be the most influential factor in the use of the various devices deployed to reduce both the impact of the fictional and the risk of appearing alarmist. Minimal variation, piecemeal presentation and computer-generated visuals all contribute to unemotional presentations. Where the risk of emotions spilling over into science seems especially great, as for example with AIDS stories, the austerity of mathematics may be called upon and representation become largely statistical.

However, both the certainty and the lack of emotions may be undercut by metaphors, which are used to enhance comprehensibility, but bring with them less controllable connotations. This seems to have been the case with the Greenhouse Effect - where it seems that positive aspects of the metaphor (like enhanced growing conditions) have deflected attention away from some of the catastrophic aspects of the phenomenon itself (like the inundation of low-lying country).

Two comparisons with eco-catastrophe stories in economic contexts revealed that an economic framing allowed a much greater range of referents, the taking of a partisan position, no pre-occupation with certainty and, in the case of the non-televisual story (the one in *The Economist*), a willingness to include an overtly fictional illustration. TV science programmes appear very circumspect in contrast. It is uncertain from this whether the privileged position of science in speaking the truth results from its great restraint in speaking to a popular audience or requires it to be so cautious.

The restraint that marks the non-fictional so heavily seems to disappear absolutely when the depictions become avowedly fictional. Minimal variation and piecemeal presentation are abandoned to be replaced by detailed presentation of the consequences of projected eco-catastrophes, even if these are only the background to an otherwise conventional plot.

The overt intermingling of the Star Wars/SDI case has not been repeated here, but neither has it conclusively been shown to be an aberration, after all.

3: NUCLEAR FUTURES

The previous two chapters have argued that scientific discourse has a greater ability than any other to talk about the future with a claim to doing so truthfully, but that it seems unable to do so completely free of the influence of fiction. It is not yet clear whether the discursive struggle investigated in the first chapter between scientific and science fictional discourse in the very particular case of the naming of Star Wars/SDI is representative of ways of talking about the future. Examining the wider case of televised scientific coverage of eco-catastrophes resulted in the discovery of a great disparity between the restraints imposed on televised science, beset by the search for certainty, and the comparative freedom both of economic and fictional discourse.

This chapter is concerned to extend a slightly different aspect of the first one - the overt involvement of politics in scientific talking about the future. The focus is on a particular area of nuclear discourse - nuclear futures. This term refers to visions of the future as it would be if changed by some event involving nuclear material - most usually a military one, especially a nuclear war, but also possibly civilian, like an accident to a nuclear installation. The chapter asks why there is comparatively little coverage of as important a matter as the future likely to be brought about by such a nuclear event. Two main possible explanations are investigated: that there is a practice of restricting discussion of the area; or that it is characteristic of the area itself to resist being discussed - more specifically that this is an instance of the sublime.

The main issue, especially in the first part of the chapter, is with the discursive contest over the right to speak on an issue that is both scientific and political. Like the first chapter, though less exclusively, this one examines discursive contests over the terms in which 'nuclear speech' is conducted and the precision of its referents. Scientists, and politicians, as long as they speak with reference to science or techno-strategy, may speak of nuclear policy and the effects of nuclear explosions without challenges being made to their right to do so. Others doing this, especially if they choose to do so through fictional means, must expect to have their right challenged.

In its most limited guise, nuclear discourse, of which nuclear futures form a part, is what has previously been termed a professional discourse, that is, it

emanates from a very restricted group of people - the military strategists and scientists of the nuclear powers. It overlaps substantially with techno-strategic discourse,[1] [discussed in Chapter One] sharing most if not all of its already described characteristics. It also includes the statements of scientists concerned with consequences other than the immediately military, for example the nuclear winter/autumn debates. The concern here is only with that part of nuclear discourse which is mediated through film and TV and which is concerned with the future. It is however concerned with a less restricted perception of nuclear discourse in terms of who can speak it. The disqualification of non-scientific speakers is not accepted. The discursive struggle betweeen professional and lay, scientific and non-scientific speakers, and the texts they produce, is at the heart of this chapter.

Given the importance of the nuclear issue, there is a surprising lack of non-fictional TV programmes (and films) about the nuclear future. It is not immediately clear why this should be so. It cannot be that the changes in Eastern Europe have reduced the salience of the nuclear threat, because these changes did not occur until the end of the research period. The most significant acknowledgement of the change they brought to the way the future was depicted was not on TV or in film, but in a specialist journal, with the symbolic turning back of the countdown clock in the *Bulletin of the Atomic Scientists.*[2]

During the research period, only four non-fiction TV programmes were noted that could be regarded as concerned with a nuclear future. Two of these have been discussed already since they dealt with Star Wars/SDI (the *Panorama* programme "The President's Star Warriors" and the *Open Space* programme made by scientists opposed to involvement in related research). The remaining two were an *Equinox* programme "Command and Control" (C4, tx. 22 October 1987) and a segment of *Brass Tacks* concerned with public reactions to nuclear power (BBC2, tx. 18 December 1986).

Nuclear documentaries are most commonly variants of science

[1] Cohn: "Sex and Death".

[2] The Bulletin Clock has stood variously between ten and two minutes to midnight. Since January 1984, it had been set at three minutes to. It was moved back to six minutes to midnight for the Jan./Feb. 1988 issue as a result of the signing of the US-Soviet treaty on the elimination of INF and other improvements in superpower relations. (*Bulletin of the Atomic Scientists*, 44(1), Jan./Feb. 1988. p3). As a result of more widespread geo-political improvements it was again moved back early in 1990 - to ten minutes to midnight. (*Bulletin of the Atomic Scientists*, 46(3), April 1990).

programmes, constrained by techno-strategic discourse and concerned with present preparations for war. The *Equinox* programme "Command and Control", for example, examined the possibility of nuclear war starting 'by accident'. It was thus a programme that did envisage a nuclear future, even if the focus was directed to ways to stop it eventuating. It detailed procedures and devices to prevent what it called the 'mad major problem' - the suggestion that an officer high on drugs, for example, would push the detonation button without authorization. Most of the programme used military personnel and visuals taken within defence establishments - the (US) Airforce Weapons Research Laboratory and HMS Renown, for example. Critical voices within the programme were supplied only by individuals who had been involved - like Robert MacNamara and ex-submarine Commander Jim Bush. This practice limits the range of voices within a programme and suggests that those lacking such experience are incapable of voicing opinions worth paying attention to. It thus endorses the view that only those professionally involved have the right to speak about the nuclear future. This does not mean that all those speaking hold the same position. The programme was able to be quite critical of military assurances that the feared nuclear future could not come about, because the usual device to rebut such criticism - claiming that (opposing) speakers are unable to have access to the truth because they did not have technostrategic credentials - was unavailable, since the critics did have military or relevant political experience.

The nuclear future being envisaged by speakers was one in which nuclear war would begin without proper authorisation - either because the President could not be contacted in time, or the electromagnetic pulse generated by a nuclear explosion would prevent communications, or the 'permissive action links' designed to establish restraint over individuals taking launch decisions were not deemed necessary for naval vessels despite submarines now carrying more weapons than are based on land, or (in a repeated racist suggestion) because Greek and Turkish units, nuclear-capable through NATO, might "go nuts". No visual support was provided for any of these 'visions'; they were presented solely in words, usually in interviews to-camera with captions emphasising the status of the speaker. This served to provide a 'sober', even scientific, impression, which mock-ups, for example, might have undercut.

The *Brass Tacks* programme was an exception to the concentration on professionals in that it examined public reactions, but not a major exception in that members of the public themselves rarely spoke directly. It looked at

opinions about nuclear safety - particularly at Sellafield. Members of the public figured mainly as the objects of investigation and comment, while the discursive power rested with the programme makers (overtly in the voice-over) and with various 'experts' - like the Chairman of BNFL, *Sun* columnist Dr. Lambert, Dr Jennifer Brown and an environmental safety officer. The public was principally represented not by individuals but in 'processed' form as poll data (only twenty-five percent of those polled thought nuclear waste would be safely diposed of), or through the over sixty thousand visitors to Sellafield in 1986. No sustained attempt was made to depict any nuclear future. As so often in social and political comment on the future, the audience was left to draw conclusions about the future that were implicit in whatever is the cause for concern - in this instance unsafe disposal of nuclear waste.

Since both the Star Wars/SDI programmes also presented the opinions of those professionally involved - scientists and technostrategists - the non-fictional TV programmes presented a consistent picture of an issue on which, regardless of the attitude they adopted to it, only 'experts' pronounced. Even the *Brass Tacks* programme only allowed ordinary, lay people a voice as part of a numerical response to be commented on by professionals.

The other main way in which the nuclear future could have appeared on non-fictional TV was in news items and associated comment on issues such as the Trident missile purchasing contracts, the anti-nuclear Greenham Common peace camp or nuclear waste disposal. Such news is never common, but even when it does appear, the nuclear future features minimally in the televisual treatment. The future in the Trident stories, for example, was represented mainly in terms of the economic cost of the programme and the issue of British dependency on the US. The technostrategic element was relegated to a minor role. This was primarily a political story. The Greenham Common story was presented, as it had been for most of the existence of the protest camp, as one concerned mainly with law and order.[3] The reason for the women's protest - which did indeed involve a vision of a nuclear future - was not presented or discussed.

Nuclear waste disposal stories on the other hand involve an unavoidable reference to the future in their statements about the length of time before materials cease to be dangerous. The emphases of TV stories which deal with this issue still tend to be on the present, on planning (where the waste will be

[3]Alison Young has demonstrated how press treatment was dominated by matters related to women's bodies and questions of deviance, but this was much less evident in TV coverage. [Alison Young: *Femininity in Dissent*, London, Routledge, 1990]

stored) or on technology (how). The latter is usually a scientific or technological story dealt with by presenting different statements - one from the nuclear industry or its watchdog bodies and one from an environmental group. Even speakers from pressure groups like these are now likely to be professionals able to defend their right to engage in nuclear discourse.

In a study of nuclear war issues in the American news media, David M. Rubin and Constance Cummings suggest a number of possible explanations for the paucity of coverage. The factors they identify may extend beyond the US (and perhaps to more than just nuclear war news). They cite journalists' avoidance of what are seen as repetitive stories, especially apparently insoluble ones;[4] a belief among journalists "that viewers cannot endure more debates about the bomb";[5] and an unwillingness for network television to question the administration's nuclear policy.[6] These all suggest that nuclear issues may be regarded as tedious, unpleasant and divisive. As long term stories dependent on theories (of nuclear winter, of deterrence, of military strategy) they lack action, concreteness and a suitable news periodicity. The installation or cost of nuclear missiles is a 'better story' in these terms than plans for their eventual use. In other words journalists' professional assessments of 'news values' make stories dealing with nuclear matters in the present more likely to be reported than those concerned with a nuclear future.

There was another non-fictional TV programme dealing with the nuclear future in the research period. This was an item on *Saturday Review* on the making of the animated film of Raymond Briggs's *When the Wind Blows* (BBC, tx. 7 February 1987) and part of the publicity preceding cinema release of the film. I have separated it from the foregoing because it was a non-fictional commentary on a fiction about the nuclear future. It demonstrates the continuing difficulty of separating fiction from non-fiction in talking about the future, but even more is an example of a characteristic of film and TV portrayals of the nuclear future. This characteristic is the accompanying of fictional portrayals, especially TV dramas, by non-fictional programmes commenting on them. The *Saturday Review* example is slight, being equally characteristic of general film promotion, but as will be seen later, the screening of 'companion' commentary programmes is a significant factor in the discursive struggle over the right to speak about the nuclear future.

[4]David M. Rubin and Constance Cummings: "Nuclear War and Its Consequences on Television News", *Journal of Communications*, 39(1), Winter 1989, pp39-58. p40-41

[5]Ibid., p49

[6]Ibid., p52

It is also relevant to the paucity of depictions, since an absence of fictions may mean that companion discussion programmes or documentaries are absent too. Depictions are not consistently scarce. At certain times quite a number may appear more or less concurrently, while long periods may elapse with very few examples at all occurring. The three years of my research have been one of the latter periods. There was no major high-profile documentary dealing with a nuclear-determined future. Even fictions may be scarce; only one feature-length film and one TV drama received first screenings in Britain.[7] It is possible that a contributory reason for this was that nuclear issues had been comparatively prominent on TV during the preceding few years. There had been a number of programmes on nuclear accidents in the wake of the Chernobyl disaster in 1986 and various 'celebrations' in 1985 of the fortieth anniversary of the dropping of atomic bombs on Hiroshima and Nagasaki. There had also been a number of nuclear fictions made for TV screened in 1983-4. Perhaps producers believed, like the journalists referred to by Rubin and Cummings earlier, that viewers did not want more debates on nuclear issues, or perhaps they had become wary of the subject because of the difficulties involved in getting a programme to air - examples of which will be detailed later.

It should be noted that, in asserting that there is a surprising lack of material representing the nuclear future, I am referring to explicit depictions. Only overt instances of films, TV programmes and commentary on them concerned with nuclear-determined futures will be considered - and not what Andrew Britton, instancing particularly *Raiders of the Lost Ark* (1981) and *Star Trek II: The Wrath of Khan* (1982), calls

> "parables of the redemptive and regenerative properties of the weaponry of annihilation in American hands."[8]

This is not to deny the importance of these and other manifestations of nuclear anxiety, merely to narrow the immediate focus.

In looking at the nuclear-based film and TV fictions of the thirty years of the research period, it becomes overwhelmingly evident that the nuclear future is one determined by nuclear war. Almost all of them can be grouped according to where war is placed in the narrative - whether it is narrowly

[7]This excepts what I am about to refer to as averted war stories and survivalist fictions.

[8]Andrew Britton: "Blissing Out: The Politics of Reaganite Entertainment", *Movie*, No.31/32, Winter 1986, pp1-42. p21

averted, transpires at the end or in the course of the narration or has happened in the fiction's distant past. Examples of films of these four types are: of those in which the war is completely averted - *WarGames* (1983), *Superman IV* (1988),*The Abyss* (1989); those dealing with the starting of nuclear war - *Dr. Strangelove* (1964), *Fail Safe* (1964), *Airbase* (BBC1, tx. 1 March 1988); those dealing with the period immediately before and after a nuclear war - *The Day After* (1983), *The War Game* (1965), *Testament* (1983), *Threads* (BBC2, tx. 23 September 1984), *When the Wind Blows* (1986); and the survivalist ones dealing with life in a world where nuclear war has destroyed most vestiges of civilisation - *Mad Max* (1979), *A Boy and his Dog* (1975), *Battletruck* (1982). The first group is not uncommon and has a number of recent examples, but since films in which nuclear war is averted cannot then depict a nuclear-determined future, little attention will be paid to them. The second group seems to have disappeared of late except on TV, and the third has only ever been sporadically represented. The last group is by far the most numerous, especially in the last ten to fifteen years, though mainly as films not specific TV dramas.

In the period between the dropping of the atomic bombs on Hiroshima and Nagasaki and the early 60s there were some films which combined the third and fourth categories such as *Five* (1951) and *The World, the Flesh and the Devil* (1959). Described by Wyn Wachhorst as "Edenic fairytales",[9] these earnest offerings tend to offer hope for the repopulation of a cleansed planet. The only film of this early time screened during my research period was *On the Beach* (1959) which offers no hope and in its resolute pessimism is more in keeping with the recent immediate aftermath films, even if it is set a few years after the posited war.

Even the few exceptions or variations have a nuclear war in their premise: *The Terminator* (1984) posits a continuing nuclear war between machines and humans in the future, but concentrates on a murderous pursuit set in the present; and the *Planet of the Apes* series (1968-1974 and a 1974 television series) is set in the very distant post-nuclear holocaust future where human beings have become degenerate animals subservient to the dominant intelligent apes and chimpanzees.

The main alternative to basing a nuclear future on war is to consider the possibilities of future accidents with nuclear reactors. These are principally

[9]Wyn Wachhorst: "The Day After: Films on Nuclear Aftermath", in *Phoenix From the Ashes: The Literature of the Remade World*, ed. Carl B. Yoke, New York, Greenwood Press, 1987. pp178-181

dealt with in political debates. Coverups of present or past accidents are however not uncommon topics for dramatic treatment. The most renowned of these is probably the drama serial *Edge of Darkness* (BBC2, tx. 4 November - 9 December 1985). However, like films on similar themes (*The China Syndrome* (1979), *Chain Reaction* (1980)), this was set ostensibly in the present. Unlike the situation with nuclear war or post-nuclear holocaust, there seems no need to set nuclear industry dramas in the future. Very occasionally there may be an aside about a nuclear material in a future-set story principally concerned with something else. The reference usually functions to intensify the depiction of an irresponsible, corrupt corporation. A *Star Cops* episode, "This Can to be Opened in a Million Years" (BBC2, tx. 3 August 1987), provides an extreme example. The convoluted plot involved a moon-based mining company's complicity in mafia-controlled illegal uranium trafficking.

Despite the fictional films referred to, there is still not a substantial number of portrayals of the nuclear future. During the three years in which I conducted my actual research, only seven such portrayals, fictional and non-fictional, TV and film, received a first screening.[10] The question thus arises of why there is so little talking about the nuclear future. Two possible answers have already been given: journalists' beliefs that audiences find such stories repetitive and tedious; and the possibility that there was something of a 'glut' of stories on the subject in the years preceding the start of the research. Two more suggestions will now be investigated: that there are restrictions placed on who has the right to speak on the subject; and that the subject itself resists discussion, either through its sublime character or for more mundane reasons.

A preliminary example of a contest over the right to speak on the nuclear future can be seen in reaction to statements by religious leaders. Many of the attacks in the news media on Catholic bishops in the US after their pronouncements on nuclear war in their 1983 Pastoral Letter questioned the right of the bishops to speak on issues that were both political and strategic-technical.[11] The moral dimension, where one might assume clerics would be regarded as qualified to speak, is here regarded either as subsumed in the political or not appropriate (much as seems to be the case on matters of social justice). Something similar had happened the previous year in the UK with the publication of *The Church and the Bomb*, a report to the Church of England's Board of Social Responsibility. The argument about this was not so much over

[10]The episode of *Star Cops* is not included because the nuclear material does not determine the character of the future.

[11]Jean Bethke Elshtain: *Women and War*, Brighton, Harvester, 1987. p153-4

the right of clerics to speak on the issue, but on their right to suggest policy implementations of their moral positions.[12] Clerics were declared to be acting improperly in speaking of military strategy.

It was noted in the first chapter that Michel Foucault's examination of 'regimes of truth' involved not just privileging some discourses over others but also identifying the status of the people who could make statements operate as 'truth'. The attacks on religious leaders for speaking on nuclear issues included identifying them as people without the necessary status in the area. The non-fictional TV programmes referred to earlier all relied on scientifically or militarily trained professionals for their pronouncements, in an apparent acceptance that the area was not one where others could speak with any claim to 'truthfulness'.

Another example of the restriction on who can be regarded as able to speak 'truthfully' can be seen from a recent development in critical theory. The argument has been advanced in a number of places that nuclear discourse is both a scientific one where only scientists or techno-strategists have competence, and one where a different group of professionals should have their competence recognised. One such argument was variously articulated in a special issue of the journal *Diacritics* devoted to nuclear criticism. The editorial, for instance, argued that all recent critical theory "recounts an allegory of nuclear survival".[13] It called for the investigation of current nuclear discussions by literary and critical theorists.

Jacques Derrida, a contributor to this colloquium, acknowledged the "techno-scientifico-militaro-diplomatic incompetence" of the contributors, but rejected it as a disqualification for participating in the nuclear debate since they did have **textual** competence. For him, the most outstanding characteristic of the nuclear phenomenon was its "fabulous textuality", even its fabulous specularization. He argued that, since (despite the use of nuclear weapons at the end of World War II) there has not been a nuclear war,

> "[t]he terrifying reality of the nuclear conflict can only be the signified referent, never the real referent (present or past) of a discourse or text."[14]

---

[12] Glasgow University Media Group: *War and Peace News*, Milton Keynes, Open University Press, 1985. Chapter 9.

[13] (Editorial), "Nuclear Criticism", *Diacritics*, 14(2), Summer 1984. pp 2-3. p2

[14] Jacques Derrida: "No Apocalypse, Not Now (full speed ahead, 7 missiles, 7 missives), *Diacritics*, 14(2), Summer 1984, pp20-31. p23

In the absence of what he saw as any possibility of reference to the "real referent", he argued that those specialised in dealing with the textual, the domain of the signified referent, should have their skills acknowledged as appropriate.

The particular relevance of textual competence has also been noted, in a slightly different way, by many of the contributors to Paul Chilton's collection of essays on Nukespeak,[15] who point out how deterrence is a phenomenon in which words and not weapons are used. Of all the contributors, William Van Belle and Paul Claes are most concerned with questions of the credibility of nuclear threats, which each side uses to convince the other that it is willing to use the weapons, while maintaining to its domestic population that to do so would be madness.[16] In a related though different vein, Ronald Aronson quotes Daniel Ellsberg's assertion that nuclear weapons **were** used on twelve occasions between 1945 and 1982, but that this use "to achieve policy aims" involved not detonation, but a **threat** to detonate, as President Carter did in 1980 in the Middle East, or President Kennedy did in 1962 with the Cuban missile crisis.[17] Despite the competence of the speakers and the perceptiveness of their comments, there has been no indication that literary or critical theorists have acquired equal status with scientists or techno-strategists as people able to speak 'truthfully' on nuclear issues. There were no literary critics speaking authoritatively in the TV programmes.

The principal way in which the discursive struggle over the right to speak about nuclear issues will be examined is by looking at those films and TV programmes which have caused controversy. The controversy at issue may be political or scientific, and is often instigated by promotion of fictions in advance of their screening or release. It features in news bulletins, current affairs stories and letters to the editor. It often itself is used as the basis for a television programme. (Objections to excessive, but non-nuclear, violence may lead to controversy, but that is not relevant here.) The controversial depictions are those in which nuclear war is not averted and survival not celebrated. They are the ones that detail the suffering of victims and the problems of triage. There seems no doubt that the reason these are controversial is because they claim to show what could 'really happen', and attempt to incorporate some of the power of scientific discourse to speak the

[15]Paul Chilton (ed.): *Language and the Nuclear Arms Debate: Nukespeak Today*, London, Frances Pinter (Publishers), 1985

[16]William Van Belle and Paul Claes: "The Logic of Deterrence: a semiotic and psychoanalytic approach", in Chilton: *Language*, p99

[17]Ronald Aronson: *The Dialectics of Disaster*, London, Verso, 1983. p268

truth into the more affective potential of the fictional. The usual basis for objecting to this way of depicting the nuclear future is the assertion that the facts are wrong and that the affective presentation is excessive or otherwise inappropriate - in particular that it is too horrific or too melodramatic.

Most of the controversy is over TV productions. This is partly because TV attracts much larger audiences than films do, but more probably because the programmes are concerned to inform and warn, rather than entertain. Even with satellites and the expansion in channels, television remains the primary information channel. Thus although *The War Game* and *The Day After*, two of the most controversial programmes, had cinematic releases, the first was in default of the forbidden BBC screening and the second followed US network TV screening. *When the Wind Blows* was initially funded by money from Channel 4 and it had earlier had BBC exposure as a radio play.[18]

Cinematic release is usually an exception for TV features. *Threads*, the most prominent recent British nuclear fiction, has not had it. Documentaries or science programmes likewise are restricted to television. The episode of *Q.E.D.* "A Guide to Armageddon" (BBC1, tx. 1977) in which Mick Jackson examined the consequences of the explosion over one city of a one megaton bomb and which led to his suggesting to the writer, Barry Hines, that they collaborate on a drama of a more sustained nuclear attack (a drama which became *Threads*), did receive an off-air screening at the Institute of Contemporary Art in London during a celebration of the BBC's sixtieth anniversary, but this was most unusual. Unless there is some such exceptional cause, television programmes on nuclear themes usually receive only one transmission. The fortieth anniversary of the detonation of the atomic bombs over Hiroshima and Nagasaki, provided one of the few instances of a repeat screening. The BBC scheduled special programmes over five nights. As well as a new specifically related documentary, *Nagasaki - Return Journey* (BBC1, tx. 29 July 1985) and two discussion programmes, there was a repeat of *Threads* and, finally, the television premiere of Peter Watkins's *The War Game* (BBC2, tx. 31 July 1985) twenty years after its production and five years after the 'future' time in which it was set. (By this time its premises were obviously no longer tenable and it all looked very dated. No longer, for instance could the breakdown of law and order have been conveyed by the shots of shouting, uncontrolled policemen.)

The War Game is probably the most notorious of the controversial

[18]The various adaptions of Briggs's work and reponses to them are detailed in Richard Kilborn: *Multimedia Melting Pot: Marketing When the Wind Blows*, London, Comedia, 1986.

programmes. The BBC refused for over twenty years to screen the programme they had themselves commissioned. Although precise details of why they refused are unavailable, it seems probable that, in common with *On The Beach*, *The Day After* and, to a lesser extent, *Threads*, it raised fears that public opposition to the nuclear deterrent would be encouraged if a graphic presentation of the consequences of nuclear war were to be shown. In other words, the controversy revealed a fear of the potency of the combination of fact and affect and the possibility that it might manifest in popular political action. Michael Tracey's examination of BBC documents reveals a disparity between the public announcements that the drama was too disturbing (referring presumably to Watkins's presentation of civilian apathy, food riots, executions and concentration camps) and the unpublicised involvement in the decision-making of senior civil servants concerned with nuclear policy, who felt it could function to support the CND.[19]

US government officials had similarly worried that the film, *On The Beach*, could promote pacifism. Not having available the British option of prior restraint,

> "Eisenhower's cabinet discussed confidential actions they might take to undermine the movie, and the State Department and the AEC distributed comments."[20]

Ignoring the projective basis of the film (made in 1959, it was set in 1964), these concentrated on attacking the 'truth' of the basic premise - the possibility of nuclear fall-out spreading all over the globe. Yet *On The Beach* shared none of the grimness of *The War Game*; it was a sentimental even elegaic piece in which a resigned Australian populace and the crew of an American submarine (the sole survivors of an unexplained war) while away the time awaiting their inescapable extinction.

A good example of the way in which fiction and non-fiction interact is *The Day After* (US: ABC, tx. 20 November 1983; UK: ITV, tx. 10 December 1983), which was the occasion for substantial debate in the US, with denunciations of the programme by the Right in advance of the screening, plans by some Democrats to use it in fund-raising for the Presidential

[19]Michael Tracey: "Censored: the *War Game* story", in Crispin Aubrey (ed.): *Nukespeak:The Media and the Bomb*, London, Comedia, 1982. p50

[20]Spencer R. Weart: *Nuclear Fear: A History of Images*, Cambridge, Mass., Harvard University Press, 1988. p 218

primaries, and discussions organized by the Peace Movement. There was concern not only about its political potential (especially over whether it would increase support for the Freeze movement), but also about its influence on children and the emotionally fragile. An anticipated increase in the suicide rate was prepared for, and special counselling services set up. In the event, the American audience was estimated to be a hundred million and critical opinion concentrated on the melodrama and the soap opera aspects which diminished the horror and arguably banalized the political message. None of the feared psychological consequences eventuated. Susan Boyd-Bowman has pointed out that for the American producers the problem of the horrific nature of the subject, was more influential both in the treatment of the subject and its screening, than the political difficulties.[21] Nonetheless, the US screening was politically framed by discussions in the press and by Secretary of State George Schultz's appearance in a post-screening studio discussion.

Post-screening discussions have since become a major feature of the controversial type of nuclear programme (and a reason why a lack of fictions means also a lack of non-fictional TV programmes). They are the ground on which the discursive struggle over the right to speak is fought. They signal that the 'facts' are under dispute; that the fiction has been seen to make truth claims and that political and military figures, and often also members of the scientific establishment, are reclaiming the ground. The discussions are however only part of the discursive struggle, which also occurs in advance publicity and rebuttal of its assertions, in letters to the editors and in news items about the comments, the screenings and the responses to them. This framing of fictional programmes with non-fictional material is a two-way process, for the fictional then structures the terms of the debate or the reception of the documentary - even long after the time of the screening. Once again scientific discourse is unable to operate 'untainted' by the fictional.

Perhaps because of the American experience and possibly also because of different British expectations of realism in documentary dramas, before the British screening there was little concern with *The Day After's* potential for horrifying the audience, although the recommendation that children not be allowed to watch alone was repeated. The political framing was provided overwhelmingly by various statements of the Defence Secretary, Michael Heseltine. While asserting that it would strengthen public support for the policy of deterrence, he also demanded the right of reply because it would create

[21] Susan Boyd-Bowman: "*The Day After*: Representations of the Nuclear Holocaust", *Screen*, 25(4&5) July-Oct. 1984, pp71-97. p75

public anxiety.[22] He refused to take part in a TV-AM discussion with David Frost because Mgr. Bruce Kent was also appearing in the programme (separately and later). In an article for the *Daily Express*, Heseltine collapsed fiction and political action in asserting his right to a special opportunity for Ministerial comment. He said that

> "*The Day After* is a political statement about nuclear war if for no other reason than that it is being shown on the very weekend of yet more major demonstrations at Greenham Common and on the second anniversary of the protest camp."[23]

ITV, in refusing his request for special treatment, emphasised the separation between fiction and non-fiction. They said that there was no precedent for giving a Minister right of reply to a fictional presentation. Heseltine eventually appeared during a post-screening discussion chaired by Robert Kee, but from a separate studio, not as part of the panel. A further political aspect was the banning of CND from buying advertising time for its magazine alongside the programme. The British audience averaged 11.3 million and LWT received only eight calls afterwards - most of them being about the discussion, not the film.

The BBC on the other hand got over a hundred calls after the screening of *Threads*; enough for the switchboard to be referred to as jammed. 70 percent were in favour of the programme's being screened. The audience however was not as large - it averaged seven million (nine million had seen at least some and four million saw all of it). The BBC Audience Research Department also announced that 63 percent of the audience had seen both *The Day After* and *Threads* and that it was twice as likely as the population at large to be in favour of unilateral disarmament. (Despite this, unilateralists still did not comprise anywhere near a majority of the audience.)[24]

Threads is a story of two families in Sheffield brought together at the beginning of the programme when the daughter of the middle class family becomes pregnant by the son of the working class family. The play concludes thirteen years later in the ruins of Sheffield with the birth of a child, possibly mutant, to the daughter conceived just before the war. It was not, as might have been the case with the early Edenic fantasies, a hopeful conclusion.

---

[22]George Jones: "TV film reply sought", *Sunday Telegraph*, 4 December 1983, p1.

[23]Michael Heseltine: "Why this fiction will never be fact", *Daily Express*, 9 December 1983, p5

[24]Peter Fiddick: "The Bang that left Britain shaken not stirred", *The Guardian*, 11 March 1985, p13

Planning and pre-screening publicity for *Threads* seemed to have learned both from *The War Game* experience and from *The Day After*; it generated comparatively little political criticism. It was also helped, cynics suggested, by being screened during the parliamentary recess which reduced the level of controversy. Indeed the Ministry of Defence welcomed the programme, only Peace through NATO and Mary Whitehouse issued statements condemning its screening. The initial screening had been delayed several months, with the result that it was shown in Japan in August on the anniversary of the bombing of Nagasaki then in six European countries before its British premiere. The combination of a scientifically qualified director (Mick Jackson), the publicized involvement of both the Home Office and SANA (Scientists Against Nuclear Arms), and a list of seven scientific advisers and eighteen more consultants enabled it to avoid *The War Game's* fate. The different statuses of the techno-strategic and the fictional were acknowledged by the on-screen presentation of the more documentary material in printed form in sub- and inter-titles, clearly marked off as separate from the fiction. Subsequent discussion did not occur until the evening following transmission and then only after the screening of *On the Eighth Day* (BBC2, tx. 24 September 1984), a documentary examining the consequences of nuclear winter, produced by the Natural History Unit.

Critical reviews tended not to debate the political position or the play's verisimilitude, but to accuse it of lacking a point - of not giving any indication of what should be done, apart from sitting around feeling hopeless.[25] A strong attack was however launched a month later, after the BBC started to market a video of the programme for use by schools. This combined accusations of unsuitability with comments generally hostile to any idea of Peace Studies. It would appear that while the producers had negotiated the dangers for the broadcast screening of a fiction appearing to make truth claims, these could be called on as part of a campaign against 'anti-nuclear propaganda' in schools.

Because the last three years have provided so few new examples, I have dealt with these three programmes despite the fact that they have had no televisual screening during the research period. *The Day After* has been available on video and the *The War Game* and *Threads* have continued to be used as a basis for discussion and campaigning by the peace and anti-nuclear movements. In demonstrating how one fiction may generate several

[25]e.g. Bryan Appleyard: "The Bomb's just the beginning", *The Times*, 14 September 1989, p11 .

other TV programmes, they help explain the comparative absence. Furthermore, the impact of these three is such that subsequent treatment tends to refer back to them. Both *The Day After* and *Threads* were reviewed with reference to *The War Game*, and *Threads* referred to *The Day After* as well.

The main TV drama of nuclear war in the last three years, *Airbase*,[26] resembles the previous three only in the fact that its showing generated political response. It was however based on the same 'mad major' premise as the *Equinox* programme "Command and Control" screened the previous year. Stylistically, and in plot terms, it is reminiscent of *Dr. Strangelove*. Set among US pilots stationed on a British base, it is a non-naturalistic tale of money, drugs, alcohol and political extremism. At the conclusion, a heroin-addicted lieutenant drops a ten kiloton bomb north of Archangel and goes down in the fireball, while in Britain the essential base personnel are ordered into the 'hardened facility'. Throughout the play, the paramount pre-occupation of the characters is drug-dealing rather than defence. After the screening, which had received little if any pre-publicity, there was considerable (short-lived) press criticism that the portrayal of American airmen was unfair. There had been no assertions within the drama that it was attempting to be predictive or informative - certainly it was not a realist production. It did not call on scientific discourse and there was no subsequent studio discussion. Only in depicting American personnel based in England could the drama be seen to speak of the 'real world', and it was on this ground that it was attacked. Sir William Rees-Mogg described it as "straight anti-American propaganda", and the Prime Minister's Office asked the BBC for a copy, since all at the Office had missed its transmission.[27]

Those depictions which are uncontroversial in a nuclear sense are the survivalist fantasies, the averted war sagas, the more pedestrian science programmes, the nuclear cover-up dramas like *Chain Reaction*, and the oddities - *The Terminator* and the Planet of the Apes sequence.

Immediate aftermath dramas are not usually part of this list. A rare example of one which generated no controversy is the film *Testament*, possibly because it was simply swamped by *The Day After* and possibly because it was not screened first on TV. It gave a very localized picture of the

---

[26]Malcolm McKay, the scriptwriter for *Airbase* later wrote "Yellowbacks", the *Play on One* with a future setting and an unacknowledged AIDS-premise, referred to in Chapter 2.

[27]Dennis Barker: "Downing Street asks for tape of TV play about US troops", *The Guardian*, 15 March 1988, p3.

aftermath, concentrating on one family in an isolated American town and following the decline of the community mainly through the eyes of a mother attempting to care for her slowly dying children. There was no political reaction to it, although critical reaction was sharply divided. Wyn Wachhorst, for instance, found it more powerful than other nuclear war films, offering nothing to the thrill-seeker, but in its intense personal focus drawing the viewer to close identification and recognition of the importance of the individual.[28] For Andrew Britton, this is the very point of his objection to what he calls a "grotesquely reactionary film". He condemns not just the relentless exclusion of the holocaust and the characters' ignorance about it, but also the absence of any feeling that understanding should have been sought or its lack commented upon.[29] It seems possible that the characters' incomprehension about what had happened is intended to parallel their powerlessness to avert death. Littman's limited focus is central to the film's avoidance of any political controversy. Because the melodrama was undiluted, the film does not transgress the 'proper' role of fiction; it makes no serious truth claim.

It appears from this examination of the portrayals that caused controversy, that problems arise when fiction is seen to be encroaching on the privileged position of scientific discourse with regard to making 'truthful' statements. It is particularly evident from the reactions to *On the Beach*, *The War Game* and *The Day After* that the precipitation of the controversy is political; scientists and techno-strategists are deployed as 'truth-speakers', but in the service of politicians. It is also evident that controversial dramas can attract large audiences and that the framing of such dramas by programmes commenting on them and asserting the superior ability of scientists and politicians to know and speak the truth about nuclear futures has come to be seen as an accepted device for regaining from the producers of fiction the right to speak 'truthfully' to these audiences (although the audience may well not watch the commentary programme).

Not all assertions in the TV dramas are challenged. One that has rarely been is the depiction of the precise situation which precipitates the nuclear war, although there has been quite some alteration in it in the thirty year period from which the films and TV programmes discussed here are drawn. Effectively these refer to geo-political 'realities', yet, perhaps because they do not have a scientific basis, they do not usually seem to be the subject of disputes over fiction's ability to tell the truth. Nonetheless, there continues to

[28]Wachhorst: "The Day After: Films", pp187-190

[29]Britton: "Blissing Out", p18

be a reluctance to specify precisely which nation detonated the first bomb. This is not absolute; the 'mad major problem' mentioned earlier, is the premise both of *Dr. Strangelove* and *Airbase* and some of the averted war stories like *The Abyss*. Generally, however, there is specificity about the particular arena in which conflict is located, but imprecision about which country breaks first. The Chinese, often the villians of earlier films, are not mentioned in later ones. *The War Game* is one of their last appearances. In that instance the arena is Vietnam, invaded by the Chinese and subject of a US threat to use tactical nuclear weapons.

Details of precipitation are important in both the controversial and the non-controversial fictions. The survivalist fantasies common throughout the 70s and 80s are usually unconcerned with what precipitated the generally long-past conflict. When they do provide such detail, it is in the films which deal with the chaos consequent on a world shortage of oil. *Battletruck*, for example, opens with a caption "After the oil wars...", then the main titles start over scenes of fire and smoke with a newsreader voice-over detailing high radioactive levels in the Mesopotamian basin, still burning Arabian oil-fields and government commandeering of oil supplies. This is one of the earlier examples where the Middle East is the arena, but no protagonists at all are mentioned.

Nuclear fictions were comparatively common in 1983. As well as *The Day After* and *Testament*, there was the BBC serial *The Old Men at the Zoo* (BBC2, tx. 15 September 1983), based on Angus Wilson's novel and adapted by Troy Kennedy Martin, who was later to script *Edge of Darkness*. This very black comedy (escaping political condemnation presumably because of its literary origin and its humour as well as its avoidance of any truth claims), is set in what was then the near future - 1990 - and specifies a deterioration of international relations in the Middle East, followed by a pre-emptive Arab strike on the UK. In the aftermath, London is shown as a lawless city with press gangs, concentration camps and people suffering radiation cancers. (Although non-specific about precipitation, the BBC *Play for Today*, "Z for Zachariah" (BBC1, tx. 28 February 1984), emphasises how significant 1983-4 was for nuclear dramas. It was probably the nearest the BBC came to a survivalist drama, being set in a Welsh valley and concerned with two survivors of a nuclear holocaust. It was not rescreened.)

The Day After is specific about the precipitating situation. The Department of Defense had refused to co-operate unless explicit reference to a Soviet first strike was made,[30] but the producers decided they could

manage without such limiting help. They specified instead a NATO firing of a tactical nuclear weapon to warn Warsaw Pact conventional troops (an action in keeping with US defence policy) and subsequent escalation. The clarity of this was diminished in Britain as a result of cutting for the ITV screening. This seems to be the only instance on which the matter of precipitation was controversial, but then it was the only instance where precision combined with techno-strategic truth claims.

Threads portrays another nuclear escalation from a Middle Eastern crisis (it now appears that this is the 'preferred arena'). Again there is a carefully phrased imprecision about the first detonation, followed by great precision about the second, Soviet, firing. The background information provided by the BBC, not only during the programme in voice-over and on-screen caption, but also in press releases, was considerable: twenty-six days after a coup in Iran in which both East and West become embroiled, the first explosion occurs; altogether 310 megatons are dropped on the UK; 85 percent of the housing stock is destroyed; four months later estimates of death range from seventeen to thirty-four million. Unlike the previous programmes, this one takes account of nuclear winter theories and carries the story forward to thirteen years after the war, when the British population is no more than four million malnourished people living in squalid surroundings. The pseudo-documentary devices rapidly provide information about the posited future and signify scientifically validated information which sustain a narrative which is separate from, while moving in tandem with, the plot.

As examples of the politically non-controversial nuclear dramas, the most typical are the survivalist fantasies. These are usually violent films concerned with life in a world after a nuclear war, where little sign of civilisation remains and a few survivors fight and scavenge for a living. Although there are a few occasions where one of these makes something of a muted truth claim - in particular through detailing the (past) precipitation of nuclear conflict - they are otherwise so thoroughly fantastic that the only debate they are likely to cause relates to excessive violence (or in the case of *A Boy and His Dog*, where the hero kills a woman to feed his dog, outrageous misogyny). This does not mean that they are unable to talk about the nuclear-determined future. The picture of devastation and the quite frequent detailing of persistent nuclear contamination and mutagenic effects are explicit references to a nuclear future. When a central concern of this chapter is to question why there are so

[30]Boyd-Bowman: "*The Day After*: Representations", p81

few portrayals of the nuclear future, the comparative frequency of this particular kind, when other depictions are scarce, demands investigation. They also challenge the idea that other kinds of nuclear-determined futures are rare because the effects of the holocaust are too unpleasant. Although they do not deal with suffering and death in the immediate aftermath, the subjects of these nuclear fantasies are certainly unpleasant, but they are presented to provide thrills.

Despite being an early example, before the sub-genre had separated from the aftermath dramas, *A Boy and His Dog* demonstrates most of the characteristics of the survivalist films; it was indeed re-released in 1984 to take advantage of the popularity of what was by then beginning to be recognised as something of a sub-genre. The hero is a young loner with no particular aim in life beyond survival. He scavenges and fights for food for himself and his educated telepathic dog and hunts for other commodities in ruined underground shelters. The world initially depicted is inhabited by men who have banded together in roving gangs under strong leaders, loners and 'screamers', dangerous mutants whose touch can kill. There are few women and the two companions are driven by the dog's desire for food and the boy's for sex. The latter leads to the boy being seduced into going 'down under' into the technological world of the underground survivors - a bizarre, hierarchical society which hides its dependence on hydroponics, robots and recycled human bodies behind the appearance of idealised small country town America. Because underground existence has rendered the men sterile, every so often surface dwellers are lured below for their sperm before being killed. At the end the boy escapes, rejoins his dog and together they resume their wandering. Its atypical features are the telepathic dog and the absence of vehicles, although the gang leader is drawn around on a cart built on a truck chassis.

Philip Strick, in an apparently flip review of survivalist fantasies, identifies two opposing reading positions: that we are already living in the post-nuclear holocaust world, since World War II ended with nuclear explosions; and to demonstrate

> "that World War III is an unavoidable part of our escalating struggle with the machine."[31]

The first of these is uncommon, but *A Boy and His Dog* could be argued to

[31] Philip Strick: "Future Movies: Reading the Signs. (Part 3): Range-Riders of the Nuclear Plains", *Films and Filming*, No. 368, May 1985, pp7-9. p7

encourage it in the light of the history lesson given the boy by the dog in which he dates World War III "hot and cold" from June 1950 to March 1983. (World War IV was nuclear and occurred in 2003.)

In support of the latter reading Strick explains how the instruments of governmental authority, especially the law, are the enemy, since they have already capitulated to the machine. *A Boy and His Dog* demonstrates this through the dependence of the highly stigmatised underground city on its machinery, including the robot, Michael, who enforces the decisions of the ruling Committee. The only law endorsed by the survivalist films is exercised by the private individual, as is so often the case in the Western, the genre most exploited by the post-nuclear holocaust films. The horse has been replaced by the motor-cycle, but the mechanical aspect of this does not seem to worry Strick.[32] Indeed a bike is visually subordinated by the literal superiority of its rider.

The sub-generic frequency of the violent bike-riding gangs and individuals sustained "by hatred and a few gallons of petrol", to use Strick's phrase, is undeniable. The important aspect here is not the bike (I am not fully convinced by Strick's argument about the war with the machine) but the opposition of the individual to the gang. As *A Boy and His Dog* demonstrates, where societies are depicted as continuing, they are shown to be beset with problems that characterised the pre-holocaust world and have been intensified since. The gangs, bike or not, are constantly riven by fights over leadership and dominance. Second only to this, and interacting with it, are questions over supply and control of fuel, which in most of the films is the only commodity shown to be manufactured (the principal mode of survival is scavenging). The individual, especially the hero, avoids these problems, and, by implication, their potential to develop again into the situation that precipitated the holocaust. His life is simple; individual (male) survivors are not subject to various 'social forces', but instead are shown controlling their own destinies by their ability to find or take (not earn) the elemental requirements to which they have been reduced - food, shelter, weapons and women.

It is not just the violent gangs that the hero avoids, but all social groupings. When communities or family groups are depicted, they are rarely the focus of concern for long. In the *Mad Max* trilogy, the hero repeatedly encounters such groups; again and again they attempt to tie him down,

[32]Ibid., p9

forcibly or through persuasion, but he resists and usually brings about at least a partial dissolution of the group concerned. (In this he could be seen as another manifestation of the mythic hero, like the Western's lone traveller.) Max, like most survivalist heroes, ends the films heading off into the desert. These are the spaces for the rugged individual, as - *pace* the Western - they have always been: soft lushness, on the rare occasions that it is seen, invites the formation of societies.

However, the lawlessness of the survivalist fantasies differs from that of the Western. In the older genre, lawlessness, even murder, usually centres around theft - of money, cattle or land - but when scavenging is the mainstay of what passes for an economy, the control of theft lacks urgency. The fighting, pursuits, killings and maimings which occupy the characters of the survivalist fantasies are usually ends in themselves. Even if they are to obtain vehicles or the fuel for them, it is not for any ultimately utilitarian purpose, since the bikes, gyros and trucks have no function other than to provide destructive pleasure. The Ferrari to which Fred Astaire devotes his last months in the non-survivalist *On the Beach* and in which he wins the world's final Grand Prix, now seems the most contemporary aspect of that film. Intended as an extreme case of the pointlessness of any action when facing extinction, it now prefigures what seems the standard male survivalist activity - driving very fast while going nowhere.

Battletruck provides a very slight variation on male survivalist fantasies, being somewhat closer to the earlier aftermath/survivalist hybrids and considerably closer to the Western. Although there is none of the sickness and decay of the recent aftermath films and there is no indication that a nuclear holocaust came near the place where the action occurs, the main characters all remember life before the wars. The community, Clearwater, sometimes described as a village, is more a settlement than is usually the case. The heroine is even shown at one stage, most atypically for such films, pruning fruit trees. Nonetheless, most action is between men and their vehicles in the stony wastes, and the hero rides off alone in the end - though since his bike has been destroyed, he does so on a horse.

It may appear that scientific discourse is unimportant for the non-controversial depictions, except inasmuch as the absence of claims on it means they are unchallenged on political or scientific grounds. Nuclear winter theories seem not to have had an impact as yet on survivalist fantasies and may indeed continue to prove inimical to them, but there has not always been

a disparity between scientific projections and entertainment-oriented fictions. Michael Curry has traced shifts in such projections, from the 50s, when the main concerns were with the driftings of radioactive clouds (reflected in *On the Beach*), through the early 60s where scientific publications about the fires after nuclear explosions led to expectations of

> "soil denudation, erosion, floods and the creation of a gigantic dustbowl."[33]

This seems to be the point at which the creators of survivalist fictions stopped. Scientists meanwhile passed through theories which envisaged permanent mist and fog caused by ash in the air (the mid 60s), ozone depletion with consequent lower surface temperatures and increased ultra-violet radiation (the mid 70s), to the early 80s and the expectation of nuclear winter caused by the density of the ash and dust swirling around the earth.[34] While the survivalist films may not have followed all the scientific theories, Curry believes that scavenging, central to the survivalist film life-style outlined, may offer the key to the avoidance of total extinction of human life during the nuclear winter.[35]

Survivalist fantasies do not need much correlation with scientific theories, compared to dramas which claim an educative role. The latter rely on scientific support in their claims to speak the truth about the future; the former aim to divert, largely through their displays of stylised violence. Despite this, the potency of the 'nuclear winter' metaphor may be such that survivalist fantasies will start to exploit it. As Curry points out, the metaphor, bringing with it the old fear of night and the dark, is so much more powerful than earlier ones like 'hard rain' and 'the republic of insects and grass'[36]. Interaction with expectations about the Greenhouse Effect could eventually be more important however. Were survivalist fantasies of this kind to start being produced, they might well start to be challenged in the same way that the TV aftermath dramas are, because they would be calling on scientifically-based truth. The outdated scientific premise both allows the survivalist fantasy to focus the mythic potency of the Western through the desert setting, and protects it from challenge by those who have the right to make 'truthful' statements about the nuclear future.

---

[33]Curry: "Beyond Nuclear Winter", pp247-8

[34]Ibid., pp249-252

[35]Ibid., p257

[36]Ibid., p263

An alternative explanation of the comparative silence on nuclear futures is that there is something about such a future itself which makes it difficult, if not impossible, to depict or talk about. The most severe version of this explanation involves the concept of the nuclear sublime. The term 'the nuclear sublime' is Frances Ferguson's. She argues that the eighteenth century ideal of the sublime as that which is of such magnitude as to be unthinkable, is applicable to the nuclear threat.[37]

The eighteenth century ideal of the sublime was of an alternative to the beautiful. It was something that was bigger, more powerful and more threatening than the individual, something which was of such magnitude as to be unthinkable. It is relevant here because arguably its most important characteristic is that it is unrepresentable. The additional characteristics, especially as described by Edmund Burke,[38] involve awe and terror, felt on confronting either certain natural or intellectual phenomena.

The aspect of immensity is particularly applicable to considerations of the future. It is evident in Kant's perception of the sublime as delivering both pleasure and pain in the ability of reason to comprehend infinity, for example, while the imagination is unable to represent it.[39] This mathematical instance is a prime example of the sublime divorced from natural objects. Burke himself observed a link between the sublime and self-preservation in the delight that results from the cessation of pain.[40] In contemporary uses of the term sublime, the pleasure or delight that was important for the earlier writers is generally given minimal attention and pain predominates. Lyotard seems to be the only contemporary writer to refer to it other than within a historical context.[41] The **pleasure** of the nuclear sublime may be a concept so difficult to comprehend that its sublimity is intensified through the imagination's refusal to encompass it. The disappearance of pleasure from the contemplation of the sublime future may, however, be seen instead to be characteristic of contemporary attitudes to the future as a whole.

It may well be that the distinctiveness of the sublime now lies more in its

---

[37]Frances Ferguson: "The Nuclear Sublime", *Diacritics*, 14(2), Summer 1984, pp4-10. p5-6

[38]Edmund Burke: *A Philosophical Enquiry into the Origins of our Ideas of the Sublime and the Beautiful*, (ed. with an Introduction and Note by J.T. Boulton), London, Routledge and Kegan Paul, 1958.

[39]Immanuel Kant: *The Critique of Judgement*, (trans. James Creed Meredith), Oxford, Oxford at the Clarendon Press, 1986. p106

[40]Burke: *Sublime and Beautiful* p56

[41]Jean-Francois Lyotard: *The Postmodern Condition* , p81

being **only** representable. The gap between it and any possible 'real referent' is absolutely unbridgeable, so that even in popular use phenomena associated with the concept of the sublime are perceived to be constructs, approximations and guesses. The link between the sublime and the future comes initially through this unavoidable shared fictionality; that all such depictions are universally known to be no more than fictions. Yet it is a tenuous link. Most 'visions' of the future are far too mundane to warrant consideration as sublime. They evoke no awe or terror, they convey little impression of immensity, they are close and almost familiar. The sublime is **available** for the future through its temporal aspect, although the degree to which this is any longer regarded as infinite has been severely diminished in the last fifty years.

Futures predicated on nuclear destruction are particularly likely to be regarded as utterly unthinkable because they depict the doubly unknown, both the nuclear and the future, together with a shift from contemplation of individual death to 'humanicide' or exterminism, terms used to describe the destruction of the human race or even all forms of life as we know it.

The central aspect of the sublime for Ferguson resides in its involvement with subjectivity. Discussing Kant's disqualification of man-made objects from the category of the sublime, she stipulates that this disqualification rests on the objects being property. Nuclear weapons are property, though not private, but it is the anticipated experience of their detonation and its consequences that are characterised as sublime.[42]

Yet although the destructive nuclear future seems to fit the conditions of the sublime there appears to be a difficulty in using the concept to explain the paucity of depictions, especially non-fictional ones. The particular problem is that the paucity is not unvarying. As was pointed out earlier, there are times when there are quite a few documentaries, TV dramas and accompanying commentary programmes, as well as other times, like the period of research, when there are hardly any. If the explanation were indeed that the nuclear future was sublime and therefore unrepresentable and unthinkable, then presumably such variation would not occur.

It is possible, however, that the sublime can help explain the comparative silence on the nuclear future, if it is the case that it makes it difficult to produce depictions. An examination of how it is that the detonation and its consequences are depicted should help decide if this is the case. The sublime is figured in mainstream film and TV programmes at two moments. The first, in

[42]Ferguson: "Nuclear Sublime", p6

the war and immediate aftermath fictions (and occasionally also in a documentary) is the detonation and the holocaust itself; the second is in the survivalist fictions and is the revelation of the devastated landscape. It is now typical of the first to occur about a quarter of the way into the film and to flood the screen with a single colour or related sequence of colours - blinding red, yellow or white light as in *The Day After* or *Testament. When the Wind Blows* depicts the light, heat and shockwave sequence by following a white flash with red and yellow colour as the heatwave 'bleeds in' and melts paint. It then shows furniture and household objects flying through the air to crash against the wall. This last differentiates it from the others, but the typicality of what precedes it is an indication that there has developed a convention of how the explosion itself is depicted. While there may thus be difficulty in making a distinctive version of the sublime moment, it is not itself an obstacle to producing a vision of the nuclear future.

A different depiction of the moment of detonation, and one that I believe conveys the terror as well as the unthinkability of the sublime is the conclusion of *Dr. Strangelove.* Kubrick closes the film in the stratosphere as the bombs fall and the mushroom clouds rise to the ultimate chilling banality of Vera Lynn singing the conventional war song "We'll meet again". I do not believe that this has been bettered for allowing space, time and provocation for subjective productions of sublimity.

The occasion when devastation is revealed in the survivalist film is either in the opening shots, or immediately following. Typically the film opens on some detail of a rather cobbled-together vehicle or costume, then the camera pulls back to reveal a featureless waste, usually a desert. Again, as a cliché, it has lost any ability to convey the sublime which perhaps it might once have had, but it does signal, in effect, the sublime's 'having been'. The desert is not just one possible landscape, in the survivalist fantasies, it is the dominant one and what is being indicated is that this state has been brought about by a non-natural catastrophe - most commonly a nuclear holocaust. The vast featurelessness of a desert rather than the monumentality of a mountain range is the geographic phenomenon which most nearly conveys the contemporary sublime. However, instead of signifying anything eternal and unencompassable, it conveys the sterility and destruction consequent on nuclear war, as well, more pragmatically, as the heat that was, at least popularly, expected before nuclear winter theories were advanced.

As one of the earliest of the survivalist fantasies, *A Boy and His Dog* also

contains some elements of the immediate aftermath dramas. It combines both figures of the sublime - opening with a sequence of mushroom clouds in yellows and blue-greens, then cutting, after three inter-titles on black background, to a devastated stony desert landscape, across which, after a few moments, a rag-clad figure with a rifle crawls. The sound-track throughout this is of dull, distant explosions. The mushroom clouds are unlocated, no ground is seen and the point-of-view is as from an observation tower many miles away. We are given no reference for what is being destroyed, no context to distract us, but just the instantly recognizable shapes of the clouds. In the wake of this, the desert landscape does not need to, and indeed cannot, signal the sublime's 'having been'.

This demonstrates that the desert, the geographic sign of the sublime, is a very weak third level indicator: at the first level, the blank or simply coloured screen all but directly portraying the 'blinding light' of detonation; then, the mushroom clouds providing an indexical sign with the close temporal link (the moment of destruction) most probably being the aspect making this potentially a potent marker of the sublime; and finally the wasteland, a sign that time has passed and with it the sublime. It seems from this that the sublime does not really explain the paucity of nuclear futures, especially since it can be figured similarly in the infrequent immediate aftermath TV dramas and the more common survivalist films.

Critical work on the nuclear sublime may, however, enable a greater understanding of how the nuclear future is depicted. It is possible that something approaching the pleasure of the (nuclear) sublime may be related to the depiction of a depopulated world. The most fruitful of Ferguson's developments of the nuclear sublime seems to me to be her reference to the way the sublime functions to alleviate the claustrophobic pressures of other consciousnesses. She attributes the recent resurgence in popularity of Frankenstein to its relevance to nuclear concerns, and says that

> "it figures the Gothic reversal of the sublime dream of self-affirmation, the fear that the presence of other people is totally invasive and erosive of the self."[43]

Nuclear fictions offer what may be a pleasurable solution to this claustrophobic pressure through a sudden, highly dramatic reduction in the number of competing consciousnesses.

The idea that the bomb offers solutions to intractable problems is rarely

43 Ferguson: "Nuclear Sublime", p8

explicit, though as Martha Bartter has pointed out, in literary fictions the nuclear holocaust as a cure for urban blight was to be found long before the first atomic bomb destroyed Hiroshima.[44] *A Boy and His Dog*, characterized by a very sardonic tone, reflects this, perhaps because it was adapted from a story by the SF writer, Harlan Ellison. It announces on-screen at the beginning

> "World War IV lasted five days.
> Politicians had finally solved the problem of urban blight."

The most extreme statement of nuclear solutions comes from Dean MacCannell's "exploration of the unconscious of post-nuclear demographic shifts and macrosocial patterns".[45] He argues that US policies since World War II have resulted in the concentration of

> "ethnic, impoverished, stigmatized and mentally marginal populations in large cities characterized by measurably inferior education, health standards and facilities and housing,"[46]

while white wealth has moved out. He contends that if such cities are targets, then enemy bombs are not necessarily a great threat.

> "The city will absorb the impact and in so doing also cure itself of our officially designated 'social problems': crime, poverty, disease, high infant mortality rates, etc.."[47]

It should perhaps be added that he is not endorsing this practice.

The worlds depicted in survivalist post-nuclear holocaust fictions are severely depopulated, though it is very debatable whether they reveal a 'better' world. Social problems have been subsumed under problems of individual survival. Where organized societies **are** shown, they are circumscribed by the return or continuation of social problems and the fact that the heroes do not remain in them. The bubble-encased and probably post-nuclear city of *Logan's Run* (Michael Anderson, 1976) from which the hero

---

[44]Martha Bartter: "Nuclear Holocaust as Urban Renewal", *Science Fiction Studies*, No. 39, Vol. 13, Part 2, July 1986, pp148-158. pp150-1

[45]Dean MacCannell: "Baltimore in the Morning . . . After: On the forms of post-nuclear leadership" , *Diacritics*, 14(2), Summer 1984, pp33-46. p34

[46]Ibid., p42

[47]Ibid., p45

escapes, 'solves' its problem of limited space by killing off those of its population over the age of thirty. The pressure of other consciousnesses becomes the pressure of other bodies.

It does not seem possible to sustain attempts to address the nuclear sublime. The moment of detonation may be indicated with some visual device signalling sublimity, but unless this is at the end of a film or TV programme, some other concern must be central to the narrative. Ferguson's comment that

> "the effort to think the nuclear sublime in terms of its absoluteness dwindles from the effort to imagine total annihilation to something very much like calculations of exactly how horrible daily life would be after a significant nuclear explosion",[48]

can be illustrated by the overwhelming majority of nuclear fictions (i.e. warning films like *Testament*, television dramas like *The Day After* and even *Threads*, as well as survival fantasies like *A Boy and his Dog*).

It is possible to view these 'trivialities' as attentuated sublimities, as Ferguson seems to, or as ways in which to detour the sublime around its unrepresentability, but they are probably better seen as part of a recognition that the sublime can only partly describe the nuclear future. A nuclear holocaust would not bring total rapid transcendent oblivion, but nasty, brutish and lingering decay. An attempt to explore the consequences of a nuclear catastrophe cannot ignore these 'trivialities'. The usefulness of the concept of the sublime here is thus limited. It does not help to investigate the majority of the content of nuclear fictions, nor the episodic paucity of their televisual appearances.

The sublime is not the only explanation of blockages on nuclear depictions that are based on the character of the material considered; there are also more mundane explanations. One of these is that film in particular is seen as entertainment, while the subject of the nuclear holocaust is far from entertaining. As Strick says of the marauding bike-gangs in the survivalist fantasies,

> "it's not quite what the American dream used to be,
> but it does seem preferable to the perils of fall-out."[49]

[48]Ferguson: "Nuclear Sublime", p7

[49]Strick: "Range-Riders", p9

Fall-out is not very entertaining, and slow and painful death is rarely good box office in the absence of healthy co-stars. Thus the bulk of nuclear films see war averted or provide vicarious thrills in a post-nuclear holocaust world.

This may help to account for the prevalence of the violent survivalist fantasies, and the averted war films, compared to the paucity of the precipitation and immediate aftermath fictions. Yet this need not be taken as an indication that these types of nuclear futures are more popular, and the other types are not made as often because they are unpopular. An examination of the profitability of nuclear future films should be informative here. Unfortunately, it is notoriously difficult to be certain about profitability among the creative accounting practices of Hollywood. *Variety's* all-time rental champions list is far from reliable, and gives information only for the USA and Canada, but it is the only comparative listing readily available. *WarGames* (US$38.5m), in which war is eventually averted, appears the highest rating relevant film by far, *Mad Max III: Beyond Thunderdrome* (US$17.9m) is the next, followed by *The Terminator* ($16.9m), *Planet of the Apes* ($15.0m) and *Logan's Run* ($9.4m).[50] *Dr. Strangelove* and *On the Beach* both suffer through having been made and released so long ago. Using Phil Hardy's suggested inflation adjustment rates (of 1984), *Planet of the Apes* becomes second, *On the Beach* third and *Dr. Strangelove* sixth.[51] (This provides an example of each of the four groups as well as both exceptions to them.) This seems to indicate that while survivalist films may be most common, they are not necessarily most popular.

Additional blockages include Rubin's and Cummings's outline of factors influencing US news coverage reticence on nuclear issues. There are also those referred to by Nicholas Humphrey in his attempt to explain why so little had been achieved to reduce the nuclear threat. He identified four inhibitory forces deflecting effective action: incomprehension or denial, social embarrassment (at discussing something as serious as nuclear war while doing or suggesting nothing to avert it), helplessness and what he termed the Strangelove Syndrome:

> "latent feelings of admiration, almost of appetite,
> for the Bomb and the final solution it provides."[52]

---

50 - "All-time Film Rental Champs"

51 Phil Hardy: *Science Fiction*, The Aurum Film Encyclopaedia Vol. II, London, Aurum, 1984. p387 [He suggests x2 for 1968 - *Planet of the Apes* and *2001* - and x4 for 1959 - *On the Beach*. No doubt higher adjustment rates would be needed now.]

(As well as being another instance of SF providing terms for serious debate, this is an early reference to the desire for a solution to intractable problems.) While these various mundane blockages may well be contributory, they, like the sublime, do not account for the variation in the infrequency of the more serious depictions.

The chapter has examined the way the nuclear future is talked about and tried to find an explanation of why there is comparatively slight coverage of so important an issue. It investigated the possibility that there might be a practice of restricting discussion, particularly on the grounds that only people with particular statuses - scientists, techno-strategists and politicians using the work of such people - could speak 'truthfully' about the subject. As an alternative it examined the possibility that the subject itself was such that it was difficult, or even impossible, to discuss. Largely because there was not a consistent paucity of depictions of the nuclear future, which should have been the case had it been a characteristic of the material, the first explanation seems more satisfactory. If the reason for the paucity is politically based, it is not at all improbable that there would be variation in the extent to which portayals are made difficult to screen or are even restricted.

Political difficulties have certainly been demonstrated. *The War Game* was known to have been refused transmission, but how many more programmes or films never got made? Watkins' more recent nuclear film, *The Journey*, has had only a single showing in this country - at the Edinburgh Festival in 1987 - although admittedly with a running time of fourteen and a half hours, it is not easily accommodated within ordinary screening schedules.

An especially revealing example of the discursive struggle over the right to speak 'truthfully' about the nuclear future was referred to earlier, with the then Defence Secretary, Michael Heseltine, seeking first a right of reply to a fictional programme, *The Day After*, and then refusing to appear on a programme discussing the programme because Mgr Bruce Kent, speaking for CND, would be appearing on it later, and finally agreeing to appear on a post-screening discussion but only from a separate studio. The example demonstrates both the elision of fictional and non-fictional discourses and the refusal of a politician to accept the right of someone speaking with a status based in a non-scientific discourse (religious and ethical) to challenge his

[52]Nicholas Humphrey: "Four Minutes to Midnight", The Third Bronowski Memorial Lecture, *The Listener*, V.106, No..2833, 29 October 1981, pp493-499. p494

statements.

The political sensitivity of the area, which is why scientists and techno-strategists are deployed to support or oppose politicians and rarely on their own behalf, is most evident in the debates about the extent to which fictional portrayals of the nuclear holocaust and its aftermath can claim to speak the truth. The euphemistic language of technostrategic discourse, in which civilian casualties are 'collateral damage' is the professional language of the proponents of nuclear deterrence. The 'truth' it speaks seems incommensurate with the slowly dying children and the sunless nuclear winters of the more serious, usually televisual, fictions, such as *The Day After* and *Threads*. Yet such fictions, can and do cite scientific support for their depictions. The discursive dispute which ensues has now been formalised in studio debates. These, and the associated print journalism items, ensure that neither fiction nor non-fiction on its own seems able to talk about the nuclear future.

To be taken seriously, fiction seems to need to call on the scientific in its talking about the nuclear future, but in doing so it challenges science's superior claims on the truth and risks controversy. The relationship is virtually symbiotic and the yoking of Star Wars and SDI seems less and less idiosyncratic. Certainly attempting to keep fiction and non-fiction separate in talking about the future is appearing less and less productive.

4: SPACE

The problems encountered when fiction and non-fiction overlap in talking about the future have continued to be evidenced. The previous chapter showed the involvement of politicians in asserting the rights of scientists and techno-strategists, rather than TV dramatists and directors, in speaking the truth about the nuclear future. This chapter will look at a situation which was popularly talked about by fiction long before scientific discourse was able to claim it. The concern here is with films and TV programmes that talk about the future in space.[1] Examination of both fictional and non-fictional material reveals certain shifts in the way this has occurred and the chapter is concerned to explore both what these are and why it is that they may have come about. It explores three particular questions. The first is whether economics has come to dominate science in both fictional and non-fictional stories about the future in space. The second is whether, given that both are discursively constructed, the fictions drive the construction of the non-fictional stories or whether the reverse applies. The third asks whether the shifts are marked by particular convergences, particular temporal ones but also of Earth-bound and space-set problems.

Most of the examples of recent non-fictional space stories used are about American activity. The presuppositions of most of the films and TV programmes under consideration, as well as the somewhat greater British news and documentary coverage of American space projects, have determined this geographic bias. Recent news stories as well as films and TV dramas have given greater acknowledgement to Russian as well as American (and even British) space activity - perhaps given the paucity of recent American activity, there has been little option, but even so, in most instances American references have framed the stories. In this chapter, newspaper stories provide specific supporting evidence of public events and political announcements, as they did in the Chapter One.

In 1898, George Méliès made *A Trip to the Moon.* Actual space flight did not begin until 1957. For nearly sixty years, fiction films outlined the future of space, little constrained, as far as the general public was concerned, by

[1] In this chapter the word 'space' is used to denote 'outer space', anything from 200 kilometres above the surface of the earth to light years away in other galaxies. Because of the recent heightened salience of a less bounded use of 'space', this may at times appear unusual.

concurrent scientific achievement emphasising the difference between the fictions and actual activities. Until 1957, the primary discourse in which space was 'spoken' was science fictional. It seems likely that this fictional background influenced public expectations of scientific possibilities - some of which, like communication satellites and Moon landings, were fulfilled. The ability of science to speak the truth in this area was largely regained as far as the present was concerned with Sputnik and the Space Race, but in speaking about the future, it may be that the agenda had been set too long by the fictions for science to be particularly powerful. Science and the fictions remained reasonably in concert on the way to the Moon, but the next steps - to Mars, the other planets and beyond - proved to be of a different order and science was unable to continue to deliver the achievements, especially within the timescale, that the visions in the films and TV fictions had seemed to indicate would occur. Scientific achievement and SF stories became again disconsonant.

In many ways space is still the quintessential site for the future to be talked about as well as being itself a major signifier of the future. Space stories, especially fictional ones, have long carried within them many other components of visions of the future, like the design of cities, social relations and ideal justice. Space is **the** setting for SF. Yet even news stories about current space activities often have an aura of the future about them, as if their meaning were postponed for later exegesis. They all seem in preparation for something bigger. Reconnaisance missions, medical experiments on the effects on humans of prolonged time spent in space, tests of docking procedures - all point towards some later serious purpose which the space-set future fictions have prepared us for. The Space Shuttles, starting in 1981, were a partial exception; their aim of humdrum commercial viability and their reusability, meant that they almost contained their meaning in the present. Then, during their actual postponement following the Challenger disaster, they were reinserted into the dominant temporality - the future. Through the media-promoted public expectation that the crews' deaths should be to some purpose, should be some step towards a glorious greater good, they too became harbingers of something yet to come.

The trouble with actual space activity now is that it is so slow and that achievements will be discernable only in the long-term, while the principal aspect evident in the present is the expense. Space lacks immediate gains, yet does not seem able to be shelved, perhaps because it might well deliver

the only positive future (though this is less clear than it once seemed), and perhaps because there continue to be so many fictions talking about it. The only short-term, politically pragmatic, goals - manned space flight itself and reaching the Moon - have long been achieved. Bridging the gap between the actuality and the glittering fictions, not only seems extraordinarily difficult, but is of the wrong time span. A gain would almost certainly occur under a different political administration. The steady continuation of the Russian space programme could until recently have been attributed in part to its having been in tune with the anticipated longevity of the Communist Party's administration.

Space may be the quintessential site for the future, but in economic terms current space activity is out of step with other visions of the future. Spending the necessarily large amounts of money on the hope of a bright but distant tomorrow is all very well when Progress is still unquestioned, but what if this is no longer the case? In one of his last books, Raymond Williams outlined what he saw as the emergent view of the future, held by self-conscious elites, a 'new politics of strategic advantage' which he named Plan X.[2] This politics, charged by ecological catastrophe and world disorder, has incorporated a pessimistic view of the future, but without any expectation of being able to change it or of attempting to do so. People who have adopted Plan X thinking have accepted

> "the indefinite continuation of extreme crisis and extreme danger. Within this harsh perspective, all their plans are for phased advantage, an effective even if temporary edge, which will always keep them at least one step ahead ".[3]

When short term gain is what is aimed for because the future seems no longer the locus of hope, expenditure on space is difficult to justify. After the Apollo Missions to the Moon ceased, plans for going to Mars were quietly dropped as unbeneficial. Under Plan X thinking, there was no advantage in it. Yet not only was continuation of space activity under the extant technologies feasible, there were also plans for alternative low-tech, environmentally-friendly space travel.[4] The latter may have been difficult to popularise, since it would have been competing with actual current projections as well as the hi-tech fictions

[2]Raymond Williams: *Towards 2000.* Harmondsworth, Penguin, 1983. pp243-248

[3]Ibid., p244

[4]Outlined for example in Ben R. Finney and Eric M. Jones (eds.): *Interstellar Migration and the Human Experience*, Berkeley, University of California Press, 1985.

which are not merely dominant but omnipresent. The plans for slow ships cobbled together of asteroids and comets sailing the solar winds for millenia exist in print SF as well as in scientific literature, but they have no visual presence in the films and TV programmes which reach a wider audience and might provide an initial basis for disseminating information about their possibility. Whatever the case, neither type of programme has yet actually been begun.

On 20 July 1989, in a speech timed to celebrate the Twentieth Anniversary of the Apollo Moon Missions, President Bush announced an American return to space

> "to enrich the human spirit, enhance national pride and inspire youth with ambitious futuristic efforts".[5]

He suggested dates for a permanent base on the Moon and exploration of Mars. The reasons given echoed the non-commercial ones of the Apollo missions, with 'national pride' a mildly coded reference to the old 'beating the Russians'. The overt, if unfortunately worded, reference to 'futuristic efforts' signalled that space was once again officially the site of the future.

Yet even this was not unequivocal. Bush concluded by referring to a

> "journey into tomorrow, a journey to another planet, a manned journey to Mars",

but he had preceded it by saying that next century it would be

> "back to the Moon, back to the future and this time back to stay."[6]

This acknowledged that there had been something of a retreat and also that the future (at least as signified by space) had not been figuring in political planning. The use of an SF film reference (*Back to the Future*) to mark this apparent abandonment of Plan X thinking can be seen to echo the earlier adoption of 'Star Wars' as the popular name of a programme which also, at least initially, viewed the future non-pessimistically.

---

[5]James R. Asker: "NASA Offers Five Alternatives For Landing Humans on Mars by 2018", *Aviation Week and Space Technology*, 131(22), 27 November 1989, pp30-1. p30

[6]Nicholas Beeston: "Bush unveils new space era for the 21st century", *The Times*, 21 July 1989, p1, 22. p1

There has not yet been any evidence that this quite substantial American policy shift has been registered in the fictional or non-fictional talk of future of space. The reported response to Bush's speech concentrated on the cost and cast doubts on any of his far from specific plans being funded. There was no reference to its scientific feasibility or purpose. Richard Gephardt (Democrat majority leader in the House of Representatives), for instance, while not disagreeing with the aims, said

> "we don't have the economic strength to make it a reality."[7]

Even as a news story it had little prominence. The long period during which space was represented only in usually mundane items on the Space Shuttle has resulted in a reduction of the newsworthiness of space stories, so that without good visuals of space vehicles and waving astronauts, they are rarely televised.

Gephardt's response, like the abandonment of space exploration, was an indication that in the last ten or fifteen years, since the Moon Missions ended, the primary relevant discourse for space stories has been economic rather than scientific. The **cost** of space activity, rather than its scientific achievements, was what was important. The Space Shuttles were designed with the aim of making space commercially viable; they carried scientific experiments, quite literally rendering the scientific secondary. In talking about the rise to dominance of what I am terming the economic, I will be referring not only to this placing of space stories within economic discourse, but also to the importance of economic motives within space activity and to the economic dimensions of aspects of the plots of SF films and TV programmes.

In this same ten to fifteen year period, there was a discursive division of space with part of it effectively converging on Earth. A separation has been constructed on an economic basis between a global surround 200 or so kilometres above the Earth and the further exotic realms. In the nearer almost domesticated space can be found the relatively mundane phenomena like communication and far-sensing satellites, Russian space stations and various tests for the proposed American space shields. This part of space has lost its exoticism to become comparatively ordinary. Further out, among the other planets, not to mention the other stars and galaxies, it is different. Activity here

[7]John Lichfield: "Bush gives space programme new goal", *The Independent*, 21 July 1989, p10

has been ruled economically unfeasible, so perhaps paradoxically, economic factors do not appear important. The dividing line may be even closer than it was during the time of the Apollo Missions, since perhaps now the further zone once again includes the Moon. (If it is not included, it must be regarded as in a liminal area between inner and outer with much of the taboo of the traditional liminal). It is almost as if the adjective in the now not so common term 'outer space' had gained some of the potency of the ex-nominated; 'genuine' space is out beyond the diminishing ozone layer, the missiles, the satellites and space platforms with all their relevance to quotidian problems. 'Genuine' space has not converged on the everyday, it is different, unknown and exciting, the promises of the fictions might still apply. Perhaps for this reason it can be the imaginative site of the future.

This separation of inner surround from 'genuine' or 'deep' space relates to the function of activity within each. Unlike deep space, inner space is an economic zone, essential to the operation of the third stage of capital where information is the dominant commodity. Communication is required to be as close to instantaneous as satellites can make it. As a conduit for commercial information, inner space is financially viable, hence the only current space activity which is regarded as really commercial is satellite launching. Such launches become commercial because of the subsequent sales: of advertising time on satellite TV stations; of far-sensing information; and of common carrier time to and by telecommunication companies. The last of these is financially the most secure.

The clarity of this separation is shattered when messages from the time before the contraction and the domestication of near space arrive. The Voyager photographs of Neptune are the prime example here, they speak of the past when the probe was launched, the present as Neptune is being recorded and the future as Voyager continues its mission. Simultaneously archaic, absolutely of the present and speaking of the future, they both collapse temporal states and insist on the specificity of the time at which each photograph was taken.

An example of a contemporary TV programme placing space activity as part of economic rather than scientific discourse was provided by *Mission Juno: Astronaut Wanted, No Experience Necessary* (ITV tx. 28 December 1989) on the final stages in the selection of Britain's first astronauts-in-training. The astronaut who was finally sent into space by Mission Juno was to go as part of the Soviet space programme, but, according to the promotion, would

be participating in the world's first commercial spaceflight, since the cost was to be born by various commercial sponsors rather than the astronaut's government. The commercial benefit from the activity was in terms of publicity for the companies associated; the launch vehicle was to be an advertising hoarding in space (and presumably on the TV news). A central part of the programme was the candidates' interviews with the directors of the Mission Juno company, during which they were asked a number of questions about their attitudes to product promotion. The two chosen were the two commented on most favourably by these interviewers.

One of the psychologists involved in the selection commented that they did not want to select anyone who showed any signs of philosophical musings, but were after an obedient "lab technician in space". This is very different from the traditional depictions of astronauts in SF films, science programmes or the news, where they are more usually gung-ho warriors with the Right Stuff in contrast to the ground-based scientific 'boffins' who make such adventure possible. Presumably they were worried by the thought of someone reflecting badly on a promoter's product. The programme itself was structured far more as a game show than science programme. The competition, the prize and the commercial considerations were the foci of attention.

The programme also showed the way in which, for all but the oldest would-be astronaut, space travel was exemplified by the Moon landing, which was regarded as distant history. The candidates had watched it on TV as children and it had been a major influence on their career decisions. Space travel was American and glorious in the past and the applicants' attitudes and the structuring of the programme indicated that realigning to a continuing Russian present and future was awkward. There was no reference to the American Shuttle programme, perhaps because the death of the civilian woman astronaut in the Challenger disaster would have had particularly unfortunate resonances. The absence intensified the image of a glorious, increasingly distant and definitely completed American adventure.

In the year after the programme was screened, Mission Juno seemed increasingly unlikely to eventuate. Adequate funding was not achieved and some sponsors withdrew. It was suggested that the ITV programme contributed to this; its flippancy deterred serious scientific involvement.[8] Once joint ventures with the Soviet Union became presented as serious commercial considerations, becoming a partner in a publicity stunt made little

[8]Mick Booth: "The perils of selling space to the masses", *The Guardian*, 29 June 1990, p31

economic sense. Once again the economic determines and in this instance, it seemed to be determining against space.

The language of economics as well as the prominence of its concerns could also be seen in a *Tomorrow's World* item (BBC1, tx. 14 February 1988) on new technology for self-repairing cells on solar panels on satellites. Here, the satellites were described as 'orbitting investments' and the new cells would enable them to be more 'cost effective'.

Tomorrow's World has also placed space activity within economic discourse in many other ways. For example, space is discussed as particularly suitable for highly specialized forms of manufacturing. The main projected industrial use is materials processing (semi-conductors, polymers and protein crystal growing), although this is still at the research stage. Power generation platforms are occasionally mentioned. Tourism is the most exotic of the projected space money-spinners, but is still very distant. As yet companies attempting direct involvement in space (like Martin Marietta Commercial Titan) are far from finding it profitable. A US Commerce Department Report issued in January 1989 blamed some of this on the frequency with which US policies on space had been changed, especially in the previous decade[9] (i.e. in the period identified as the one of the contraction and domestication of space). Mundane space may also be indirectly economically viable for corporations through its military role. The aerospace industry finds it highly profitable to produce components for spy satellites, for example, but this is not evident in films or TV programmes.

Reports of the various disasters asociated with space activity were the most common type of space news, especially for the later part of the research period. British TV and newspaper reports that Congress had refused to fund the return to the Moon, which was the first stage of the Mars Mission, were only a component of a compound disaster story. Even these stories are now concerned with economic causes, in particular with the consequences of accepting the lowest tender for equipment. Stories questioning NASA's chances of surviving and the future of **any** American space ventures followed the Congressional refusal, the discovery of flaws in the lenses of the Hubble Space Telescope and the grounding of the Shuttle fleet because of fuel leaks.[10] The economics-based questioning here is of the capabilities of the

[9]Theresa Foley: "Commercial Space Shows Long-term Promise Despite Early Setbacks", *Aviation Week and Space Technology*, 130(12), 20 March 1989, p118-9. p118

[10]Nicholas Booth: "When can't do, won't do", *The Observer*, 8 July 1990, p62.

Space Agency, not of the commercial viability of space.[11] Even *Tomorrow's World* broadcast compound problem stories which reflect on the competence of the Space Agency. On the second anniversary of the *Challenger* disaster, an item detailed a succession of design errors that would delay the Shuttle relaunch (BBC1, tx. 14 January 1988).

The *Equinox* programme entitled "Mission to Mars" (C4, tx. 23 July 1987) talked about how the most feasible Mars mission would involve the cooperation of several nations because otherwise it would be too expensive. This was most characteristic of the treatment of 'outer' space as being divided from inner on an economic basis, but then being treated as freed from the economic determinants which dictate the construction of 'inner' space. After this economic placement of the story, the most distinctive part of the programme was its addressing the point of the presence of humans in space exploration and the admission of a senior NASA executive that

> "the main function of man [sic] in space is entertainment. Instruments can do better than man."

This acknowledgement of entertainment could be seen as an admission of the role of SF in setting the space exploration agenda. If scientific information alone was the justification for going to Mars, instruments would have been adequate. There were no serious suggestions that there were any economic purposes in going to Mars, just that economics were important in getting there. Yet human presence was seen to be necessary. In SF stories, people went to Mars; people explored space and the sending of instruments was merely a prelude to this. On *Tomorrow's World* (BBC1, tx. 7 November 1989) a special item speculating about 2020 in space, stated explicitly that any desire to go to Mars was driven by an exploratory rather than an economic motive, but noted indirectly that a lunar base and associated space stations would make a journey to Mars cheaper. (This item included a brief but most exceptional comment about space exploration for a non-fiction programme: a scientist speculating that the first child would be likely to be born on Mars by 2030. It was pragmatically framed as a consequence of a family being the most stable grouping for prolonged space travel, but it was notable that it made by a woman, a doctor specialising in space medicine.)

Deep space has not yet been allocated a definite economic role. It is still an area for exploration where knowledge is not yet economic information. It is

[11] Chris Vaughan: "White House demands probe into NASA", *New Scientist*, No. 1726, 21 July 1990, p18

also spoken of as having another potential function - providing an escape route so humans can survive the destruction of Earth by nuclear war or ecological catastrophe. Stories of interstellar migration are not all fictions of escape, some are the results of serious scientific study.[12] Verbal references to the possibility of space as the final refuge or migratory passage are occasionally made in non-fiction TV programmes on catastrophes or possible futures. They are not however very common.

The economic motives now seen to be required to justify 'real' inner space activity can also be seen very clearly in the fictional films and TV series about space. In looking at space fictions from the last thirty years, it is instructive to see how the posited purpose for being in space has changed as the economic motive becomes more dominant. Unlike the actual space situation, there has been no division about 200 miles up - economic motives reign right out to the stars. In this section, I will examine fictional films and TV programmes to demonstrate how the purpose constructed within them for being in space has shifted during the period under consideration. In attempting to identify whether the shifts are discursive consequences of 'events' like Sputnik or the Vietnam War, it becomes necessary explicitly to ask questions about the relationship of fictional and non-fictional space stories. Does it appear that the fictions are driving the discursive construction of non-fictional space activity, as was being suggested earlier with the proposition that SF had set an agenda for space exploration, or does the reverse apply?

Four main purposes for being in space have been articulated in the fictions: exploration, research, colonization and economic exploitation. Research was never sufficient by itself, but it did become attached to the other three in sequence. There is no intention to deny the economic motives of colonization by separating it from economic exploitation; in the fictions, however, the distinction is maintained, with the main theme of 'colonization' stories being resistance to oppression. For most of the later fictions, economic exploitation effectively means mining. There are many hybrids of these purposes, since passage from one to another involves an overlap not an abrupt change, but the very few fictions which are substantial exceptions seem then to require the existence of aliens to transport humans into space. These films, like *Explorers* (1985) or *The Last Starfighter* (1984), are space adventures of individuals, usually targetted at children or adolescents and

[12] Finney and Jones: *Interstellar Migration*

rarely set in the future. They will not be the concern here, although they are often prime examples of utopian sensibilities being evidenced in special effects.

Early SF films presented the purpose of being in space as exploration in pursuit of knowledge, but in a way that allowed adventures to be central to the plot. The space explorers/adventurers acted on behalf of their government (or 'mankind') and whether or not they were military personnel was unimportant. *Forbidden Planet* (1956), although from before the period of my concern, is a typical example. Presumably actual space activities provided sufficient excitement after 1956, because there were no more space-set films until 1967, except for exceedingly low budget films featuring the likes of the Three Stooges and not now replayed. There were SF films in this period, and space was not ignored, but the SF films depicted things coming from space to Earth. Furthermore they did so in the present. Cold War invasion fears were transmuted in films in which monsters or aliens (or alien monsters) threatened innocent and often semi-rural communities. *Invasion of the Bodysnatchers* (1956) is the obvious example, but there were others such as the two derived from John Wyndham novels: *Village of the Damned* (1960) and *The Day of the Triffids* (1963).

Television was not quite so circumscribed. *Dr Who* had intermittently explored space since November 1963 and *Star Trek* spanned the years from 1966 to 1969. The latter could be regarded as more or less congruent with the resurgence of a space setting in film, especially given the greater lead-time in film-making. The exception provided by *Dr. Who* is perhaps less significant since it is a children's TV programme.

Barbarella (1967) marked the resumption of the space as a setting of filmic interest. It told the story of a secret agent being repeatedly and sexually diverted while attempting to track down a missing scientist who had a doomsday weapon. Perhaps because it was constrained by the French comic strip on which it was based, it bears little similarity to the other films of this phase. Like the later equally atypical *Dune* (1984), it was set so far in the future (in the fortieth century) that no single dominant purpose for people being in space was suggested. People (and other beings) **were** in space in numbers so great that their purposes were manifold. *2001* and *Planet of the Apes* (1968) were more typical of the films marking the re-emergence of the space setting. This shift in the construction of space as once again a place for people to go, rather than a place from which threats came, occurred during the build-up to the successful Apollo 11 landing on the Moon in 1969.

Exploration continued to be the prime reason for being in space until the late 70s, although other purposes, including research, were mentioned. The journey of the space ship *Discovery* in *2001* was one of exploration, but the bases on the Moon were used for research. In *Planet of the Apes* the human astronauts have also been engaged in exploration before being caught in the time warp that delivers them to the future, simian-ruled Earth. Throughout the *Star Trek* TV series, the *Enterprise's* crew are engaged in exploration, though within a (rarely foregrounded) framework of colonization. The exception to the emphasis on exploration is *Silent Running*. This is a Green space adventure. The space ships in this film are arks holding the sole remaining forests of Earth. The hero defies his Earth-based bosses' orders to destroy the forests because it is too expensive to maintain them in this way, and sends 'his' off on a journey far into space in the hope that it will be able to be saved and regenerated.

The strong change to the primacy of a colonization purpose began in 1977 and is observable both in the space fantasy *Star Wars* and the TV series *Blake's 7* (BBC1, four series, tx. January 1978 - December 1981). As was mentioned above, the distinctive theme of 'colonization' fictions is not imperialism, but resistance to it. Battles are fought to control empires and these are more likely to be between humans than against aliens (as had generally been the case when the colonial framework became evident in *Star Trek*). The equivocal temporal siting of *Star Wars* has already been referred to, but *Blake's 7* was definitely set in the future. The series (unfortunately not repeated during the three years of research, unlike the various US space series, like *Battlestar Galactica*, of approximately the same period) posited a huge space empire, the Federation. The first group of heroes were space-based guerrilla fighters. As the group lost those earlier members who had had an ideologically-based opposition to the Federation, they became adventurers first, resistance fighters second. This did not quite happen in the two *Star Wars* sequels; resistance (just) remained in first place.

Outside the fictions, the period immediately preceding and just after 1977 was one of high spending on military and space research before the Cold War began to wind down, until the rather different resurgence in spending associated with Star Wars/SDI. The 'real world' concern with military hardware and the experience of the electronic battlefield in Vietnam could be seen mirrored in the prominence of special effects in the space battle films.

Although fighting against imperialist mechanical aliens (the Cylons),

adventuring resistance fighters also featured in *Battlestar Galactica*, a US TV series made in the wake of *Star Wars* to attempt to capitalize on the popularity of special effects. In the second series it became evident that *Battlestar Galactica* was not set in the future. However, the first series' imprecision about when it was set and its space setting made it reasonable to regard it as being concerned with the future. The main concern of the series was not to examine colonization (the heroes had been driven from their home planets by the evil Cylons) but, as Mark Siegel has argued, to examine the relationship between people and technology.[13] One episode foregrounded colonization nonetheless by showing the ordinary would-be colonists on the space fleet attempting a revolt against the miserable cramped conditions they lived in, in contrast to the spacious (hero) officers' quarters.

The colonisation theme was carried not only by these but also in both the film and TV series *Buck Rogers in the 25th Century* (1979), as well as the *Star Trek* films (1979-1989) - though to a lesser extent. Like *Star Trek* and *Flash Gordon* (1980), *Buck Rogers* was constrained by its earlier manifestations. As in the 1929 comic strip and the 1939 film, Buck was a twentieth century hero keeping the peace through his superior strength in a mildly degenerate future. He operated on and among a number of planets colonised from Earth, but apparently independent of it. The film of *Flash Gordon* differed a little in being an explicit attempt to recreate the aura as well as the plot of the original comic strip, hence it presented an image of the future in the style of the 30's - backyard spaceship building and civilisations on Mars included. Unsurprisingly, the purpose for Flash being in space was exploration and adventure.

These were constrained by predecessors developed under the dominion of earlier views of the purpose of space activity. In films concurrent with them, but without such constraints, the purpose for being in space was different - it was much more overtly concerned with economic exploitation, though colonization might continue to be the background for it. The film which signalled the change was the SF-horror hybrid *Alien* (1979). Space was now a zone for economic exploitation - the spaceship *Nostromo* is a mining freighter diverted to check out a planetary discovery. In previous films a spaceship would have been diverted to gain information or to rescue stranded people, here the return trip is interrupted only because the company owning the ship sees an opportunity to benefit economically. Furthermore the

[13]Mark Siegel: "Science-Fiction Characterization and TV's Battle for the Stars", *Science Fiction Studies*, 7(3), 1980, pp270-277. p275

anticipated 'benefit' is to weapons manufacture. Pure research, like an analogous 'pure' space exploration, is no longer justifiable.

With the rise in importance of economically motivated plots, space lost all vestiges of glamour. The spaceship in *Alien* was grimy and cramped and the crew's clothing was based on army fatigues. Together with persistent complaining about the job and their employer, the Company, these established the ordinariness of space. The crew were just employees, regarded by the Company as absolutely disposable - as is made clear when they discover orders that the alien from their planetary landfall must be brought back even if it costs all of their lives. This is no story of a future more glorious than the present, nor is the space-based future shown as in any way more positive than the Earth-based future. This is a future where being in space makes little difference, corrupt immoral corporations still control everything.

The same vision is evident in *Outland* (1981). Again the economic use of space is for mining, this time on one of the moons of Jupiter. The film allows a slight possibility of the main corporation being unaware of the corrupt practices engaged in by the particular franchisees of the operation, who provide their employees with work-enhancing drugs, regardless of their lethal effects. Again the employees live and work in cramped surroundings and even the law enforcer hero's job is stripped of glamour. As H. Bruce Franklin says,

> "he is just draining a little pus from one of the absesses of decaying interplanetary monopoly capitalism".[14]

Mining remained basic to the initial future envisaged also in *Red Dwarf* (BBC2, three series tx. 1988-1990). The eponymous ship which provides the setting for the SF sitcom was again a mining freighter and, before the disaster which shifts the narrative three million years into the future, was crewed by a large number of comparative incompetents and subject to all manner of mechanical and electronic failures. Much of the humour is itself generated by showing the future as ordinary and unglamorous.

When space was not being colonised or mined, it was used as a safe (i.e. off-Earth) site for research, specialized manufacturing and the development

[14]H. Bruce Franklin: "Don't Look Where We're Going: Visions of the Future in Science Fiction Films 1970-82" in George Slusser and Eric S. Rabkin (eds.): *Shadows of the Magic Lamp*, Carbondale, Southern Illinois University Press, 1985. p81

and deployment of artificial humans. *Saturn 3* (1980) is set on a moon-based food production station which allows for the contained testing of a robot with an organic brain. *Android* (1982) presents a space station which apparently exists solely for research on the development of advanced androids. *Blade Runner* (1982), though entirely Earth-based, depicts a future where space has been colonized and to which the fit have migrated, but which is also the only place where artificial humans can legally exist. As is so often the case with the highly detailed future represented in *Blade Runner*, there is more. Replicants (the artificial humans) are largely used in mining.

In the *Alien* sequel, *Aliens* (1986), there is no reason to suppose that the Company has ceased being involved in mining, but it is not the main concern. The primary economic activity referred to is terraforming (the creation of an environment suitable for human colonization on a previously inhospitable planet) including the production and supply of the requisite machinery. The plot concerns the return of Ripley, the survivor of the first film, to the planet on which the original alien had been discovered, to try to find out why the Company's base there has ceased communication. She returns with a Company executive and a detachment of the US Colonial Marine Corps, accustomed to trouble-shooting missions in space, that the Company has available as a matter of course. Jim Naureckas has claimed that the presence of the marines and of the Company executive, Carter Burke, reverses the earlier films' condemnation of the Company's corporate totalitarianism. In *Aliens*, he says, it is possible to read Burke as just a particular bad apple and, in the us-versus-them world where Ripley and the Marines confront the aliens, our identification with the Marines by extension exculpates the capitalist system.[15] Naureckas's reading of Burke seems difficult to sustain, not only because of Ripley's continued contempt for the Company as a whole, but also because of her meeting, in the early part of the film, with a boardroom-full of Company executives all of whom are similarly depicted. The second point is a little more persuasive, yet virtually all of the Marines are killed or maimed by the resurgent aliens who have already killed all the base personnel except for one child. Even if the audience members do read the Marines as representatives of the capitalist system, by the end only the castigating Ripley and a minor character (a monosyllabic female pilot) are left whole to identify with. The only alternatives are an injured wimpish lieutenant and one-third of an android. Inasmuch as the Marines can be seen to support the capitalist system, it is probably only through indicating that there is something other

[15]Jim Naureckas: "*Aliens*: Mother and the Teeming Hordes", *Jumpcut*, No 32, 1987, p1 & 4.

than the Company - even if they are (as far as one can tell) only deployed through it.

Although much less successful at the box-office, *Enemy Mine*, also projected an advanced colonization and mining combination, but left the economic largely unspoken. Most of the film depicts the developing relationship between a human and an alien, fighter pilots on opposite sides in a future space war, who must rely on one another after they both crash on an uninhabited planet. Surrounding this tale is the story of a war between the colonizing races and its resolution. The film begins with a heavily jingoistic voice-over announcing

> "By late in the twenty-first century the nations of Earth were finally at peace, working together to explore and colonize the distant reaches of space. Unfortunately we weren't alone out there. A race of non-human aliens called the Dracs were claiming squatters' rights to some of the richest star systems in the Galaxy. Well . . . they weren't going to get it without a fight."

In the course of the narrative, the distinction between colonizers and squatters is obliterated; both Dracs and humans are revealed as moral people and the mantle of evil is placed solely on the human bands of slavers. Colonization, which is unquestioned, presumably proceeds post-war, only in a more orderly manner. The locating of evil in a criminalized group is similar to the depiction of the corrupt executive or franchisee rather than the whole corporation or economic system. It makes it possible for the depicted evil to be represented as contained and aberrant rather than pervasive and characteristic. *Enemy Mine* is not characteristic of 80's fictions in doing this.

By placing interstellar activity only a century in the future, *Enemy Mine* may be regarded as envisaging particularly rapid developments in space travel. Slower, and less romanticised, space futures were more common in the 80s - though some films are imprecise about dates. It is generally the case that the nearer in time a depiction is set, the nearer in space it is too. *2010* (1984) and the TV presentations *Star Cops* (BBC2, tx. 6 July - 31 August 1987) and *Murder on the Moon* (ITV, txd. 26 August 1989) were all examples of this. Although constrained by being a sequel to *2001* (which had presupposed moon bases and a regular passenger-carrying shuttle service to the Moon) *2010* made little reference to continuing space activity and showed

especially the US, but also the USSR, having wound down their space programmes. The only reason for a special (joint) space mission was the need for an urgent investigation of an anomalous situation near Jupiter.

The main emphasis in *2010* is on the space events, but this is against a troubled geo-political background and during the trip to Jupiter, the US and the USSR go to war. In the one-off TV drama *Murder on the Moon*, this situation had barely been avoided a few years before the time at which the action was set. Although there is little sign of actual conflict in the series *Space Cops*, relationships between the two countries are far from smooth and in one episode, a corporation dealing in 'confrontation commodities' attempts to increase tension. In other words, a space setting is no guarantee of escape from the troubles or difficulties of Earth.

Both the television drama and the series were set towards the end of the first quarter of the twenty-first century, on space stations and the Moon and concerned law and order problems arising among the personnel of the various national space enterprises engaged in research, manufacturing and mining. This comparatively near space was very much a new economic area, but new only as far as the site and its potential was concerned. Otherwise corporate activity was represented as it was on Earth - corrupt, immoral and careless of individual well-being.

It is virtually impossible to find any contemporary film or TV programme in which a space-based or space-operating corporation is shown to act lawfully or morally. It is difficult to find one doing so in Earth-set future fictions either. So common and standard is the presentation of corruption now, that a Naureckas-style reading of the fictions as seeking to exculpate the capitalist system as a whole by depicting a few scapegoats acting improperly and being punished cannot be sustained. Corporations, whether operating on Earth or in space, just seem inevitably to be economically and morally corrupt; even if they are punished, there seems no indication that they will be reformed. It is probable that this persistent presentation of corrupt corporations was facilitated by the decentring of actual corporations into multinationals. Vivian Sobchack has pointed to the apparent paradox of this decentring occurring concurrently with the increase in the concentration of economic power in their hands. She has even suggested that they

> "seem to determine our lives from some ethereal 'other' or 'outer' space".[16]

[16]Sobchack: *Screening Space*, p234

Perhaps this makes easier their fictional operation **in** outer space.

The corporations may be corrupt and operate contrary to the well-being of most of the individuals and collectivities depicted, but they now provide the main means of financing the space-based future. Only films constrained by precursors made before 1977, as is the case with the various *Star Treks*, provide space-based activities funded by national or international agencies. The ethical code which the corporations follow may be read as simply necessary to generate the capital needed to get into space. Morality after all, requires an adjective to locate it and the one that has been silent here so far is probably 'old-fashioned'. The purity that may be invested in non-fictional expectations of deep space, as suggested earlier, is generally unavailable in the fictional, especially if the fiction has been generated in the 80s without reference to earlier precursors.

This may appear to be implying that films of the future, especially the space-set ones, are sustained anti-capitalist statements. The economic aspects of the plots that have been concentrated on here may seem to support this, but this is only part of fictions. Individual characters expose and contest both the economic and the moral corruption of the corporations. Furthermore, Andrew Britton has suggested that a positive image of capitalism is provided in these films not so much by the plots, but by the special effects, both in the diegetic and extra-diegetic celebrations of technology (the sign of 'progress' in capitalist societies).

> "The six-track Dolby sound, the 70mm, the trick-work, the much vaunted profligate expensiveness, all testify in themselves to the magical potency and dynamic robustness of contemporary capitalism even as they realise a future state which represents the apotheosis of the same technology."[17]

Nonetheless, contrary to Britton's assertion, this dual celebration frequently carries with it a statement of the cost - the transnational corporations which are the principle benefactors are beyond any but the most localized restraint on the operation of corporate advantage. The individuals who confront them, like Sean Connery's character in *Outland*, rarely do more than make local adjustments. The celebration of capitalism is more muted than Britton allows

[17]Andrew Britton: "Blissing Out", p13

and usually carries an internal warning about the consequences of a lack of restraint.

Yet Britton is correct in pointing attention away from the plot. Not just technological sumptuousness and the special effects, but also scenographic details are part of a discourse which, while not itself economic, still attests to the importance of economic practices. In many space-set films, rubbish seems surprisingly prominent. *Star Wars* uses rubbish as a plot device more than once and in *Enemy Mine* (1985), the marooned hero discovers the presence of other humans by stumbling on their rubbish.

I intend to argue that this rubbish is relevant to the primacy of the economic pervasive in both fictional and non-fictional stories about space. Rubbish is the space-set metonymic indicator of the urban squalor so characteristic of earth-set films of the future. Such squalor provides more than merely scenographic interest. Writing about postmodern cultural forms more generally, Fredric Jameson notes being confronted with the questions of

> "[h]ow urban squalor can be a delight to the eyes when expressed in commodification, and how an unparalleled quantum leap in the alienation of daily life in the city can now be experienced in the form of a strange new hallucinatory exhilaration."[18]

A brief examination of the function of urban squalor in earth-set films such as *Blade Runner* and *The Running Man* indicates how similarly rubbish in space operates. Piles of rubble, abandoned burnt out cars, derelict, boarded-up houses and rubbish blowing along city streets are features of many fictions and documentaries of the present, as well as films of the future, particularly law and order ones. For the first thing urban squalor now signifies is 'reality', the nitty-gritty indeed. Since most of the indicators of urban squalor, like burnt-out cars, are unavailable in a space setting, rubbish signifies more widely there.

Secondly, litter figures the commodified world both causally, by being consequent on consumption, and metaphorically by its cluttering thingness. Urban sufaces are crunched and crenellated to become interesting to the eye as just another visual commodity. Perhaps the strongest example of this is the film *Blade Runner*, whose vision of the trashed-out, retro-fitted city, sodden with acid rain and littered with black plastic bags of rubbish is the

[18]Fredric Jameson: "Postmodernism, or The Cultural Logic of Late Capitalism", *New Left Review*, No. 146, July-Aug. 1984. pp53-92. p76

quintessential 80s vision of the future city. Its influence may be seen in the barrios of *The Running Man* and the various versions of *Max Headroom*. (The trashed city of *Escape from New York* predated and prefigured it.) Writing of *Blade Runner*, Giuliana Bruno notes the closeness of the link between postindustrialism and waste.

> "The continuous expulsion of waste is an indexical sign of the well functioning apparatus: waste represents its production, movement and development at increasing speed. Postindustrialism recycles, therefore it needs its waste."[19]

When waste is expelled in space, as it is by the Empire's battleships in *Star Wars*, it is an equivocal sign of production. While the example shows the Empire to be technologically very competent in having made space operations so 'normal', it also shows them to be profligate and thoughtless.

The third operation of urban squalour is as the tangible emblem of evil (as in the preceding *Star Wars* example) or corruption. It is not usually individual corruption that is so figured, but the more widespread institutional, even social, corruption. In *The Running Man* the cleanliness of the areas in which the privileged live and work contrasts with the overcrowded derelict barrios of the dispossessed. Like the ruin of New York that is the prison in *Escape from New York*, this is an indicator of the moral culpability of those who have created the system, even more than an (inverted) sign of the moral worth of the groups concerned.

In space, rubbish cannot function thus solely scenographically; its presence needs diegetic explanation. The already referred to, highly potent crime and corruption episode of *Star Cops* ("This Case to be Opened in a Million Years", tx. 3 August 1987) involved drugs, the Mafia, uranium-trafficking and commercial corruption, and centred on the use of space for nuclear waste disposal. It is hard to conceive of any more thoroughgoing exposition of the link between corruption and detritus.

The foregoing has shown the replacement in importance of the scientific by the economic both within fictional and non-fictional stories about space. In the non-fictional world, this replacement occurred in the period between 1975 and 1981. In 1975 the joint docking of an American and a Russian space

[19]Giuliana Bruno: "Ramble City: Postmodernism and *Blade Runner*", *October*, No. 41, Summer 1987, pp61-74. p64 Reprinted in Kuhn (ed.): *Alien Zone*.

vehicle (Apollo 18 and Solyuz 19) signalled the end of the Space Race, the superpower competition which started with the 1957 Russian success with Sputnik and climaxed with the 1969 American success of the Moon landing. 1981 saw the first successful flight of the Space Shuttle with its aim of making spaceflight commercially viable. The shift in the fictions occurred in the same period with the disappearance of exploration and research as the prime purposes posited for being in space, except in those films and TV programmes that were constrained by being sequels to, or remakes of, earlier fictions.

In trying to account for the shifts, the question of whether fictional or non-fictional discourses are driving is difficult. Before Sputnik and Vostok 1 (which in 1961 made Yuri Gargarin the first man in space), it seems reasonable to assert that SF drove. In the period up to the cessation of the Apollo missions in 1972, or possibly even until the joint docking in 1975, neither drove, perhaps both fictions and non-fictions operated in concert. Yet for most of this period SF films depicted space only as the source of threats that came to Earth, in transmutation of Cold War tensions. Thus if actual space activity was being discursively constructed in terms set by SF, it was by SF that had been made before 1956. The SF films in their turn were not being driven by 'real' space activities either, yet in suggesting that the monsters and aliens which featured so repeatedly in them, were related to the Cold War, it is a non-fictional discursive influence that is being asserted. This influence furthermore also operated on the discursive construction of the Space Race, for the statements of the urgency with which the Russian lead had to be overtaken and the funding that eventually made it possible, also derived from the same Cold War tensions.

It is possible that non-fiction, specifically science, achieved greater discursive power to drive non-fiction in the period immediately preceding the Moon landing until the end of the Race; the period, in other words, of anticipated and actual American triumph. Although the Cold War was still in effect, space no longer figures in the fictions as the source of threats, instead it provided adventure and 'scientific' discoveries.

With the economic as dominant as it is after this period, it no longer becomes possible to decide how the relationship between fiction and non-fiction is operating. I earlier suggested that the economic itself was able to become powerful because actual (scientific) space activity could no longer deliver as unproblematically the achievements that had been mapped for so

long by SF. This is a claim that the fictional was still discursively the driving force, but it is a tentative claim. Certainly I have demonstrated the rise of various economic considerations during a time when scientific achievements were not occurring on the same schedule as SF had appeared to suggest they would. There is, however, no suggestion that SF is driving the current construction of space activity primarily within an economic discourse.

The other main characteristic of the stories of the future in and of space is the convergence of domains. Among the convergences to be considered are the convergence of fiction, actual events and scientific capabilities, which was noted above, especially in the earlier period of actual space activity; temporal convergences, particularly of the present and the near future; and the convergence of Earth-bound and space-set problems.

An unusual convergence of fictional and non-fictional domains was notable in the only non-fictional programme from before the research period to be rescreened - an *Equinox* programme "A Short History of the Future: The Spaceship", (C4 first tx. 28 August 1986, retransmitted 22 January 1987). The programme concentrated on spaceship design and the interaction of film, TV and radio SF with scientific and technological events - citing, for example, Fritz Lang's 'invention' of the countdown in *The Woman in the Moon* (1929), on the set of which Werner von Braun worked, and President Eisenhower's showing staff at the Pentagon Walt Disney's TV film *Man in Space* (which used a model of a rocket Werner von Braun had designed for an article in *Collier's* magazine) in the mid-50s. The programme was not however talking about the future as much as talking about past visions of it.

It was particularly striking in its collapsing of fiction and fact and of three temporal dimensions in a prestigious scientific programme. Overt acknowledgement that fiction had preceded or at least been imbricated in scientific developments is most unusual in scientific discourse. A companion programme transmitted the previous week, " A Short History of the Future: The City", referred briefly to *Things to Come* and *Metropolis* (1926) but otherwise ignored SF. No other programmes in that *Equinox* series referred to fiction of any kind. It appears that while SF is occasionally allowed into science and technology programmes talking about the future when they are more design history than science, only when talking about space is SF allowed a significant presence.

The convergence of the near future and the present may be noted in several ways. A time may be given to a fiction, which when reached can 'date'

the work in most senses of the term. George Orwell's *1984* is the most famous example of this. Precise dating emphasises the predictive, so that when the date is reached and the 'prediction' not realized, the work may be rejected as simply 'wrong'. The convergence in instances such as this is thus only apparent. The space films most likely to be subject to this are *2001* and its sequel *2010* (1984). A surprising number of films and TV dramas do give a precise date for their action. In the 80s the most popular temporal setting was 2018-2028 - far enough away to be different but near enough to be recognizable.

This temporal convergence may also be perceived following the positing of, to use Suvin's term, *nova*. When, as occasionally happens, they become realities or widespread and thus no longer markers of the soon-to-come, they may serve to validate the whole vision. Thus the saving of the world's forests in spaceships orbitting the Earth in *Silent Running*, may seem more credible now than when the film was made in 1971. On the other hand the reverse may occur. They may become more obviously impossibilities or be revealed to be based on laughably outdated premises - as some descriptions of spaceship controls using punched cards have been - in which case they can invalidate the whole vision.

The next area of convergence refers to that area where space is no longer seen as all that distinct from Earth. The romanticism of the early fictions which emphasised the difference of space - more innocent or more evil but in either case an escape from the mundane - can now only be found in those films or TV programmes heavily constrained by being sequels or remakes. Otherwise, space is not just metaphorically like Earth, but practically as well. The problems of Earth are also to be found there. This has already been apparent in the earlier discussion of rubbish, urban squalor and corporate corruption.

It is necessary to begin an argument that there has been a convergence between the demographic character of the fictional space-set and Earth-based future, by acknowledging that the representation of the population in TV programmes and films is based on the dominance of groups in contemporary society, not on census data. The demographics of the fictional space-based future have always provided strong evidence of this. There are many more men than women, whites than non-whites, 'prime of life' people rather than the young or the old, middle rather than working class, and as far as can be ascertained, none who are not able-bodied and heterosexual. (This is actually rather in keeping with the demographic profile of 'real' astronauts so far -

perhaps even over-representing the number of women.)

Despite this, the fictions preceding the rise in importance of economic purposes for being in space do present something of a demographically distinct future in space. The earliest films of the research period (*Planet of the Apes*, *2001* and *Silent Running*, though not *Barbarella*), showed an overwhemingly male, white, prime of life future space. In contrast to this, the initial *Star Trek* TV series explicitly used demographics as part of its representation of a different (and better) future, by putting a black American woman and a Japanese-American man on the bridge. [This and subsequent developments in the saga will be examined in the next chapter.] By the late 70s the distinctiveness was beginning to diminish; the inclusion of at least one woman in a spaceship crew - both for films and TV programmes - became unremarkable. *Blake's 7* usually had two (and the Supreme Commander of the Federation was also female). For a while it also used the *Star Trek* device of the doubly significant black woman, presumably finding this sufficient racial diversity since none other was afforded.

By *2010*, however, the commander of the Russian ship and one of her crew were female and the American computer specialist was an (East) Indian man. The rest of the crew were white males, the age-range included the middle-aged, but not the old. *Alien*, *Aliens* and *Star Cops* were mixed on both gender and racial lines. *Outland*, *Android* and *Saturn 3* had both male and female characters but only white main characters. Characters in these three and *Star Cops* included the middle-aged. *Red Dwarf* had no continuing female character until the third series, when the computer became a white female, but had shown some of the original crew as women. The racial composition is more difficult to be specific about, since the basic cast for the first two series used two black and two white actors (the third series increased to two black and four white), but one black actor played a humanoid being evolved from a cat. A similar, though exacerbated, problem occurred in *Enemy Mine* which had one black and one white lead actors, but the black one, Lou Gosset Jnr., encased in reptilian latex, played a hermaphroditic alien.

Late middle-aged people provide the major alternatives to the overwhelming presence of those in the prime of life. Burt Lancaster, playing the hero in *Saturn 3* is the oldest person depicted in space, although playing a character younger than his own age. Children are also rare. The most prominent role for a child in a future space-setting is that of Newt, the child survivor in *Aliens*. She, together with the hero's son in *Outland*, indicates

some small vision of a future when working off-Earth will be sufficiently ordinary for families, rather than just single people, to be out there. *Outland* provides a more diverse age range than most, not only with a young boy, but Sean Connery as a middle-aged hero and Frances Sternhagen as a late middle-aged woman doctor.

Class is more difficult to assess in space stories, but inasmuch as it may be assessed, *Alien, Aliens, Outland, Star Cops* and *Red Dwarf* provide the only working class characters. Only the TV programmes, through their longer time span, allow them to be major characters - in the first two films they are killed and in the third little more than set dressing. *Star Cops* provides only one example and he is probably the least prominent of the continuing characters; *Red Dwarf* on the other hand has its only middle class characters among the long distant dead - but it is the only comedy.

From all this, it seems possible to argue that there has been a convergence and that space is no longer regarded as the site for a demographically distinct future. Racial diversity, which had signalled Progress, ceased to carry this connotation, instead becoming a marker of realism or even 'grit'. The death rate for black characters is higher than for white ones, however. Apart from the Indian computer specialist in *2001*, only in the TV series do any black characters survive to the end of the fictions, a situation remarkably similar to that for working class people of whatever race. The restricted age range, may be 'justified' for the elderly on the basis of various fitness requirements, while the almost complete absence of children may similarly be seen to be the result of space being a **work** setting, where children are inappropriate. Apart from this, the space-set future diverges hardly at all from the earth-based future, or indeed the present, as shown on TV and in film - to be shown and survive it is best to be a middle class white man.

One area where there has been little convergence between discursively constructed space and Earth is in the depiction of settled space. Colonised moons and planets are rarely shown, especially in films from the 80s, though they may be signalled by implication or verbal reference. The city and its teeming hordes are shown on Earth. Heavily populated space is uncommon and impermanent - the mining 'encampment' in *Outland* is probably its chief representative. Even in *Dune*, which may provide the nearest to a long-term settled society off-Earth, the viewer has to assume settlement, has to assume that the flamboyant courts rule over and are supported by a substantial population located somewhere off-screen.

Although limited by their budgets, TV programmes like *Dr Who, Star Trek, Blake's 7* and *Buck Rogers in the 25th Century* were occasionally located in off-Earth cities of the future - though the most that was actually shown was corridors and rooms. The sparse population and bare set-dressing resulting from the budget restrictions may have been read metonymically, but because they were constant across such programmes and accorded with the general sterile and spacious spaceships sets, could well have been perceived as intentional, as part of the 'look' of the future.

Despite their greater budgets, the *Star Wars* fantasies still rarely showed ordinary citizens, or ordinary cities. The major instance was the rough spaceport town on Tattooine in the first film. A city above the clouds (in which only its ruler and his guards seemed to live) appeared in the second. *Blade Runner* which provides such a dense picture of the future Earth, only gives hints of life off-Earth. The advertising blimp at the beginning encourages people to emigrate to the off-world colonies and J. R. Sebastian comments that his debilitation keeps him on Earth, but the only sustained description of life in space comes in the monologue from the dying replicant Roy Batty. He speaks of the glory of the skies seen while working in space, not of living there. It is after all to Earth that he and the other replicants have returned to avoid dying.

The final domain of convergence is a much more theoretically complex one drawn largely from the work of Vivian Sobchack on changes in the perception of space in American SF films from the early 50s to the mid 80s. She uses the central metaphor of 'deep' and 'shallow' space in her categorisation of these films. This makes for several problems. The first arises because I have already used this metaphor as an alternative to the division 'inner' and 'outer' space, which was shown being drawn about 200 miles above the surface of the Earth. This is not how Sobchack is using it. She does however appear to be using it in two ways: one, rather negatively, to refer to a post-modern 'depthlessness', a flatness and lack of affect; and two, to refer to the depth of field on the cinema screen.

Because Sobchack's argument is particularly useful to my discussion but based on a different body of material, it is necessary to outline it in some detail to indicate how her conclusions differ from, yet contribute towards, mine. She examines all American SF films made since 1950, thus considering many films which, since they neither represent the future nor have a space setting, are not considered here. My inclusion of TV programmes also alters matters.

Sobchack's argument depends on considerable emphasis being put on marginal films, most of which are also not considered here, since for budgetary considerations, they are set on earth, and present space as that place from which phenomena (aliens, comets, devices) come and occasionally return.

In her categorisation, the films of the 50s are described as representing space as semantically 'deep' and time as accelerating and urgent; while those of the period 1968-1977, between *2001* and *Star Wars*, depicted a domestic and crowded space (using the term to refer more to 'area' than 'outer' space) usually on Earth, in which time had lost its urgency since the bad present presaged a worse future. After 1977, space and time expanded again and things became more hopeful,[20] yet space did not become 'deep' again, instead it .

> "is semantically described as a surface for play and dispersal, a surface across which existence and objects kinetically dis-place and dis-play their materiality".[21]

While her temporal divisions are the same as the first three developed earlier in this chapter, they are not describing the same characteristics, since she is dealing with so much larger a body of films. There is however an odd kind of convergence being asserted in her categorisation as, with the lack of depth, space is little differentiated from Earth.

In support of her refusal to reinstate depth as a characteristic of space in contemporary SF films, Sobchack cites the

> "superficial electronic 'dimensionality' of movement experienced as occurring on - not in - the screens of computer terminals, video games, music videos and movies like *Tron* . . . and *The Last Starfighter*."[22]

That she does perceive a link between the postmodern use of the term 'depth' and the cinematic depth of field is evident from her later comment when, speaking primarily of the marginal films, she points out how

---

[20]Sobchack: *Screening Space*, p226

[21]Ibid., pp227-8

[22]Ibid., pp230-1

> "constant busyness and motion are enhanced by the material clutter of excess scenography to distract the eye from locating itself in the fixed position from which the conception of personal movement, depth and interiority (or subjectivity) become possible."[23]

This certainly appears applicable to films like *The Adventures of Buckaroo Banzai Across the 8th Dimension* (1984) or *Dune*, but not to the conservative mainstream films which are my main concern. A fixed position can readily be located in them. The occasional outburst of 'excess scenography' is contained by surrounding it with more reticent material, rather as Sobchack suggests happens with the electronic effects embedded in and rendered safe by, the cinematographic ones.

The films of Sobchack's third stage are the ones where convergences are most noticable. She divides them into marginal and mainstream conservative ones, principally on the basis of their acceptance or rejection of the postmodern aesthetic ideals of depthlessness, weakened historicity, new emotional tone and a new relationship to the 'new' itself. Despite their explicit rejection of these, she emphasises that the conservative mainstream films (more of which are my concern here) cannot escape - the new aesthetic informs their unconscious and their deep structure.[24] The aspects that relate to convergence are the manifestations of depthlessness as the deflation and inflation of space, the weakening of historicity in a conflation of time, and the related rise in significance of special effects. It is the first of these that seems least satisfactory for the fictions under consideration. When discussing 'outer space', her argument appears to rely too much on a proliferation of detail in the *mise-en-scène* and the generation of it by electronic means. Her point about the spatial having displaced the temporal in importance since 1977 remains relevant.

The change from the stark spare spaceships and the emptiness outside them of the earlier period to the crenellated battleships and detailed astronomical bodies cannot be ignored. The greater detail probably generates considerable audience pleasure. While accepting her point for oddities like *Dune*, it seems too strained to suggest more generally that the presence of a greater degree of visual interest on the surface of images projected two-dimensionally, reduces the 'depth' conveyed by the same process showing

[23]Ibid., p 270

[24]Ibid., pp253-4

less detail in the visual field. Similarly, the space battles which Sobchack concentrates on are as affectless as she says. However, they are only moments in much longer fictions which undercut the depthlessness. The removal of a blip on the screen means nothing but another (video) kill, but *Enemy Mine*, for example, which starts with just such a dogfight sequence, spends most of the film changing the status of the 'blip' from enemy to family.

The number of films constrained by forerunners from the first and second stage further complicate the applicability of Sobchack's third stage of SF film to the depictions of the future in and of space. After the success of *Star Wars*, space-set SF film-making became very expensive. Sequels and other kinds of follow-ups to high-profile forerunners were made in attempts to reduce the economic risk. Thus concurrently with the gritty futures of *Outland* and *Alien(s)*, there are the cleaner, more optimistic futures of the various *Star Trek* films (as well as the odd mystic romanticism of *2010*).

Yet disputing the general relevance of Sobchack's ascription of postmodern 'depthlessness' to the films and TV programmes of the space-set future does not mean that all the analysis of her third stage of SF film is rejected. The conflation of time which means, for example, that it is often difficult to determine whether a film is or is not set in the future, is certainly important. My earlier discussion of temporal convergence is an endorsement of this. The emphasis she places on special effects is also valuable, even if the conclusion to be drawn here differs somewhat.

Some statements made about the effects work in *2010* will be examined to provide a contrast to Sobchack's analysis. Initially, they may seem to provide unqualified support for her assertions, since the repeated interactions between the director, Peter Hyams, and the ubiquitous visual futurist, Syd Mead, are reported as being about increasing surface detail - on the probe which investigates the moon, on the bridge on the *Leonov* and on its exterior. Yet despite this, the obsession of both men was with the 'real' and with both public and specialist 'knowledge' of it. Thus Hyams says of Mead

> "Syd is really amazing at being able to extrapolate real surface detail and make it look convincing. He is not one of those people who just paints wonderfully imaginative paintings - he is an industrial designer by trade and the bulk of what he does is real".[25]

[25]Adam Eisenberg and Don Shay: "Jupiter Revisited - The Odyssey of *2010* ", *Cinefex*, 20, January 1985. pp4-67. p11

The effects supervisor, Richard Edlund, who had also worked on *Star Wars*, contrasted the two films, pointing out how the lighting of the space ships was based on different premises. In *2010* the position of the light source had to be in accord with Hyams "concept of cinematic reality in space".[26] This added depth (of field) and particularity to the *mise-en-scène*. Mead himself refers to public expectations constraining his work.

> "People know what space hardware looks like and they've now seen shots of mock-ups of the space station - what we expect it to do. As a result the public has a vision of what it *should* look like right now and if you go too far past that they probably won't believe it."[27]

While it is a photograph of a mock-up that is the source of this public expectation, there is again here a convergence of the fictional and the non-fictional visions of the space future. The makers of *2010* took a very conscious decision to create and promote the film through exploitation of this effective cross-over of domains. It would have been possible to concentrate on its being a sequel to *2001*, a prestigious art and cult film, but instead this aspect was muted.

It is possible to perceive this particular convergence, this intermingling of fictions and scientific 'facts' as characteristic of the 'hyperreal', where 'reality' is destroyed by the plethora of simulated objects more 'real' than it is itself. The main enunciator of this theory, Jean Baudrillard, claims that the mass media have destroyed the 'real', to which it was once possible to have access, by replacing it with simulacra, copies for which there have been no originals.[28] Baudrillard denies the ability of ordinary people (the mass) to distinguish between simulation and 'reality', they reject difference and meaning because simulation has already displaced reality.[29] While disputing this idea of the mass's refusal and rejection, his thesis has relevance here. Despite the promotional claims, in *2010* all is indeed

---

[26]Ibid., p40

[27]Ibid., p12

[28]Jean Baudrillard: "Symbolic Exchange and Death" in Jean Baudrillard: *Selected Writings*, Edited and Introduced by Mark Poster, London, Polity Press, 1988

[29]Jean Baudrillard: "Implosion of Meaning in the Media and the Implosion of the Social in the Masses" in Kathleen Woodward (ed.): *The Myths of Information*, Madison, Coda, 1980.

simulation.

The way Umberto Eco uses the concept of hyperreality seems more valuable, particularly when considering the future where the 'real' is an especially tenuous mental construct. For Eco, the hyperreal has not replaced 'the real', rather it attempts to do so, not everywhere but in specific locales and for specific reasons. Of his travels through America in search of the Absolute Fake, he comments

> "Absolute unreality is offered as real presence. [. . .] The sign aims to be the thing, to abolish the distinction of the reference, the mechanism of replacement."[30]

Eco sees no need to argue as Baudrillard does that the 'masses' are passive and incapable of discrimination. He does not suggest that the fakes succeed, only that they give pleasure. Nor does he argue for the wider applicablity of hyperreality. As a description of limited phenomena rather than an all-encompassing term, hyperreality is quite useful. It can be seen here as an acknowledgement that when fiction and non-fiction converge, it does not result in some steady yet indeterminate intermediary position, but in a bid for dominance by one or the other. (When Sobchack uses the concept of the hyperreal to contrast electronic representations with the greater 'realism' of cinematographic representation,[31] she develops her argument from Baudrillard.)

The shots of Jupiter in *2010* are a prime example of the hyperreal, but only to the extent that extra-textual information is incorporated into a reading of them. When the film opened in the US, an extended review by William J. Broad, the *New York Times* science writer, situated it in terms of 'real world' scientific and political knowledge, referring to the involvement of reputable technical advisers.[32] Much was made in promotion of the film of the contribution of the Jet Propulsion Laboratories and of information from the Voyager probe. The (screen-)writer Arthur C. Clarke was said to have been moved to write the sequel to *2001* by seeing the Voyager photographs of Jupiter's moons.[33] The film may well itself have acted as a principal

---

[30]Umberto Eco: *Faith in Fakes*, London, Secker and Warburg, 1986. p7

[31]Sobchack: *Screening Space*, p261

[32]William J. Broad: "Science Facts Help Propel Science Fiction in the Film *2010*", *New York Times*, 2 February 1984 p1, 17.

[33]Joanna Lipari: "*2010* Men", *Film Comment*, 20(6), Nov.- Dec. 1984, pp60-63. p60

disseminator of the probe photographs, especially given the cost of enhancing these for public recognition. Broad quoted one of the film's technical advisers Richard Terrile, an astronomer working at NASA's Jet Propulsion Laboratories, claiming that the film gave the photographs greater resolution than the 'real' space people had achieved.[34] Scientific information, its technical quality enhanced by the capital resources of the film industry, is here being purveyed through a fiction to a popular audience and its status as scientific 'reality' made part of the fiction's marketing. There is indeed here a very specific attempt to replaced the 'real' photographs of Jupiter and its moons with hyperreal simulations placed in a fictional setting.

Yet even before their enhancement for incorporation into the film, the photographs were hardly innocent. In discussing a series of photographs of similar origin published by the National Geographic Society, Donna Haraway points out how

> "[t]hese fabulous objects come to us simultaneously as indubitable recordings of what is simply there and as heroic feats of technoscientific production".[35]

Despite this, in their closest approximation to innocence they were a collection of digitalized signals. Even initially, before they were manipulated for the film, they were a simulation with much of the hyperreal about them. Each translation is a re-representation and while the filmic one of their incorporation into *2010* may enhance their apparent clarity (the image is, for example, probably made much denser to bear the enlargement it will receive), it also involves the stripping away of part of the temporal quality. The Voyager photographs carry as part of their validation the very specific time and date of their being taken as the probe passed. Within the film, the time and day may be unclear but the title makes certain that the year is known and it is twenty-eight years after Voyager passed Jupiter. This certainly supports Sobchack's assertions about the conflation of time - as does the film as a whole.

It is difficult to map Sobchack's tripartite periodization onto actual space activities. Shallow domesticated space is still with us, but so are the depthless

[34]Broad: "Science Facts", p17

[35]Haraway : "Situated Knowledges", p582

computer graphics of the Star Wars/SDI plans. Yet they seem too frightening to be convincingly playful, no matter how much their linguistic accoutrements attempt it (e.g. the Smart Rocks which revamped became Brilliant Pebbles).[36] The dominance of the economic is difficult to integrate with the playful. Yet it seems equally difficult to suggest that her periodization and the shifts in American space policy have no congruence at all.

As the dates of Sobchack's periodization coincide with the first three of those in the periodization based on the posited purpose for being in space enunciated earlier, the links with shifts in American space policy (and practice) suggested there should continue to have some relevance. The main obstacle to doing this lies in her ascription of moods, where the second period - in which the Apollo missions occurred - is bleak, while the third - where little other than supposedly commercially viable activity occurred - is hopeful. It is the inclusion of so many Earth-based films that makes this a reasonable suggestion. In seeking explanations outside the films for the shifts she detects, Sobchack looks to American foreign policy, not its space activities. The bleakness parallels US engagement in Vietnam; the hope, disengagement.

Is there any hope to be detected in current American space policy or in the space-set fictions? It does not appear except in Bush's 1989 announcement of the return to space exploration, and implementation of that was denied by the Congressional refusal to fund it. Hopeful speculation that international co-operation would be central to future ventures 'deep' into space, received no encouragement even from this, for Bush's statement did not outline a co-operative vision. The vision in *2010* of an uneasy co-operative space venture forced by circumstances on hostile powers and unhappy space administrations has not yet been rendered passé by events in the real world. Actual American space activity continues to be limited to inner space and unpleasurable because so many of the recent stories have been ones of failure. Projected space activity receives little coverage. Even the fancy of a space rocket advertising Mars confectionery was a British one, coming from the Mission Juno team.

This image, apparently ephemeral, assuredly fitting Sobchack's playful

[36]There is however one quite overwhelming example of the playful use of space, unfortunately marginalised by its non-English language status. On 21 July 1989, as a salute both to the twentieth anniversary of the Apollo Moon mission and the fiftieth anniversary of Tintin's creation, and at a cost of £3000, a replica of Hergé's moon rocket was fired from Kourou in French Guiana. (Nicholas Booth: "Tintin's rocket finally set for blast-off", *The Observer*, 9 July 1989, p32.) Unfortunately, its aerodynamics were so bad it barely left the ground.

sign-laden use of space, but economically-based, focuses the various convergences which have been the concern of this section and ties them to the economic emphasis preceding it. It takes advertising, one of the most overt manifestations of the operation of information as a commodity, physically into space. It seems reasonable to assert that the initially projected accompanying scientific experiments were merely token gestures to the old 'serious' use of space. It brings the future in which there will be Britons in space, a future frequently depicted in SF, (artificially) closer, but it also demonstrates the intersection of Earth bound and space set problems. Above all it typifies the current role of 'real' space activity in its superficiality, since it will lead to no continuing British presence, nor to any advancement of the general move into space, but only be a newsworthy novelty for a very short time.

This chapter has demonstrated that the most important shift in both the fictional and non-fictional discourses talking about the future in space was the one that occurred in the period 1975 to 1981, between the cessation of the superpower Space Race and the commencement of Space Shuttle flights. Towards the end of this period it became evident that scientific discourse was no longer dominant, but that it had been replaced by the economic. Actual space activity came to be spoken off as requiring commercial viability and the increasingly frequent (or more widely publicised) NASA disasters of the 80s were traced to economic causes (accepting lowest-bid tenders), rather than being regarded as fully explained by identifying the implicated technical or scientific fault.

In the space-set fictions, a four part categorisation revealed how, after periods when exploration, research and colonization in turn had been advanced as causal, economic motives came to dominate the purposes for being in space. The only exceptions to this dominance came from films and TV programmes which were constrained by forerunners from earlier periods. These were the only fictions in which governments were still perceived to be financing space missions, in the others space was an area of economic exploitation, where corporations, principally involved in mining, were the sole operators.

In attempting to account for the shifts and to decide which of the fictional and non-fictional discourses was the driving force, it was suggested that initially SF drove because it had been able to operate without major public contradiction from scientific activities. It had been possible for the development of space travel to be outlined by SF as involving unmanned

Earth orbit, followed by the first person in space, followed by a Moon landing, a Moon station, a Mars landing, possibly other Solar System planetary landings then interstellar travel. 'Science' achieved precisely this up to and including the Moon landing, but then the concurrence stopped.

Even if fictional discourse was regarded as driving during the period of the Space Race, it ceased around 1975, when there was no next step deeper into space. In any case, the SF that may have been discursively structuring actual space activity was not so much that of the contemporaneous films as of the films, radio serials and print SF preceding the start of 'real' space flight.

For both this periodisation and the latter use of Vivian Sobchack's, American foreign policy was regarded as being as likely to be influential on the fictions as space policy may have been. The Cold War and the engagement in Vietnam were both cited as likely to have been relevant to the discursive shifts about the future in space. It did not prove possible to decide about the relationship between fictional and non-fictional discourse in the latest period of economic dominance, although doubt was expressed about SF being capable of directing the discursive construction of spce activity within economic discourse.

The final part of the chapter examined a number of convergences in discourses about the future in space. These included the fictional converging on the non-fictional, as evident, for example, in the actual achievement of space goals set in SF; temporal convergence and a form of spatial convergence as the distinction between Earth and space lessened, especially as space no longer served to represent a progressive view of the future. These convergences, and the related conflation of time and rise in importance of special effects noted by Vivian Sobchack, all occur in the same ten to fifteen year period which saw the replacement of the scientific by the economic. The shifts in the way the future in and of space have been talked about are surprisingly consistent across fictional and non-fictional discourses, despite the considerable disjunction between the mundane actual achievements in inner space and the intergalactic trade wars of SF films.

5: *STAR TREK* AND THE NOSTALGIC FUTURE

In the previous chapter, the shifts that were identified in actual space activity, in TV programmes and in SF films were found to culminate in a replacement of scientific discourse by the economic, as the dominant one in which to talk about the future in and of space. This was found to have occurred in the period betweeen 1975 and 1981, the same period in which a number of convergences, temporal, spatial and between the fictional and non-fictional, could also be detected. It was however pointed out that the shift to the dominance of economics was not to be found in those fictions of the late 70s and 80s which were constrained by forerunners from before this period.

There are a significant number of these exceptions, so this chapter will examine one group of them - the *Star Trek* fictions - in considerable detail, to see how very different this way of talking about the future is. It begins by looking at how the constraints are manifested through the activities of fans. It then extends the section of the previous chapter on hyperreality to show how this particular type of convergence is evident in what is termed the '*Star Trek* Phenomenon'. The particular future advanced in the *Star Trek* fictions is identified as a nostalgic one which is revealed on investigation to be a nostalgia for a very particular time, the 60s, and for the optimism seen to characterise it.

The vast body of *Star Trek* material from 1969 to the present offers an opportunity for sustained investigation of this 'alternate' way of talking about the future. The frequent repeats of the TV programmes, the professional and amateur promotional activities and the great popularity of the films mean that *Star Trek* is undoubtedly the most recognized of contemporary SF fictions. Furthermore, the power of the original TV series is such that it continues to constrain contemporary derivatives. While other films, like *2010* and *Flash Gordon* also demonstrate the operation of past constraints, only *Star Trek* will be dealt with here because the constraints are stronger and the body of constrained material greater. The chapter will investigate possible reasons for the potency of this particular fiction as well as the character of the future it posits.

The *Star Trek* corpus is considerable. The products of the Paramount Picture Corporation comprise seventy-nine episodes of the TV series initially broadcast in the US between Autumn 1966 and Spring 1969, an animated

version that ran in the US in 1973-4, a new continuing descendant series *Star Trek: The New Generation* which began in the US in 1987 and five films: *Star Trek: The Motion Picture* (1979); *Star Trek II: The Wrath of Khan* (1982); *Star Trek III: The Search for Spock* (1984); *Star Trek IV: The Voyage Home* (1986); and *Star Trek V: The Final Frontier* (1989). There are other products with a formal relationship with Paramount: books, videogames and models of the *Enterprise*, for example. While most of the books are 'novelizations' of TV episodes and films, an increasing number are independent, published after the film sequence began. There are also innumerable products available which have no formal relationship with the company but are designed to make a profit, as well as fan-generated material like fanzines and self-published scripts which have no such purpose. Fan material is not merely recycled, but appropriated, as can be seen by the wide range of purposes to which it is put, from the explicitly Christian to the equally explicitly homoerotic Kirk/Spock novellas. Some of this material, like *The Star Trek Starfleet Technical Manual*,[1] functions as a constraining device, since it is used by producers and fans to check consistency, which is highly valued by the audience, whether fans or not.

The basic premise from which the first TV series was developed involved positing a far future set in the twenty-third century in which interstellar travel was a reality and much of the galaxy was settled. It was an ever expanding zone of generally harmonious relations between physically distant people. Although many planets had been colonised from Earth, there were also alien races, the most frequently represented of which were the (good) Vulcans, Romulans and Deltans and the (bad) Klingons. The main characters are the crew of the USS (United Space Ship - national governments apparently no longer exist) *Enterprise*: Captain James T. Kirk, Science Officer Spock (half human-half Vulcan), Ship's Doctor McCoy, Communications Officer Lt. Uhura, Chief Engineer Mr. Scott (Scotty) and other bridge personnel Mr. Sulu and Ensign Chekov. Their mission was one of exploration - in the renown words of the introduction "to boldly go where no man has gone before".

The plots of the first four films all concern the continuing consequences of present day activities: space exploration and the development of machines that think (*Star Trek: The Motion Picture*); genetic engineering and associated research on the origins of life (*Star Trek II: The Wrath of Khan* and *Star Trek III: The Search for Spock*); hunting animals to extinction and animal intelligence (*Star Trek IV: The Voyage Home*). With the possible exception of

[1] Researched and compiled by Franz Joseph, New York, Ballantine, 1975.

animal intelligence, all these were important in the TV series. Indeed the second film is a sequel to the TV episode "Space Seed" - and the next two films, sequels in their turn to the second. The concern of the fifth film (*Star Trek V: The Final Frontier*) with rescuing hostages also has contemporary relevance.

The term '*Star Trek* Phenomenon' is quite frequently used of the TV series and its multiple and varied derivatives and refers to much more than merely marketing sucess (which is primarily the case with apparently similar usages such as the Rambo Phenomenon). Using it here also asserts an analogy to Bennett and Woollacott's 'Bond Phenomenon', their term for

> "the diverse and changing forms in which . . [the figure of Bond] . . has been produced and circulated, and . . the varying cultural business that has been conducted around, by means of and through this figure during the now considerable slice of post-war history in which it has been culturally active".[2]

There are certain similarities between the two Phenomena, especially in terms of their pervasiveness, the diversity of their manifestations and the way in which they provide convertible images of, or for, comparatively unfamiliar matters. Bennett and Woollacott acknowledge the desirability of examining the reading formations

> "which bear in upon, mould and configure the relations between texts and readers in determinant conditions of reading",[3]

and also the of difficulty of doing so. It may be that it is slightly easier to attempt this with *Star Trek* because of the greater organization of fan groups and the availability and volume of their publications. This however only provides a form of access to one of the audiences (or the more literate part of one group of them).

The fans are particularly important because in constituting themselves guardians of the record, they have become probably **the** major component of the operation of the constraints of the past. The fan activities of 'Trekkies' are

---

[2]Tony Bennett and Janet Woollacott: *Bond and Beyond: The Political Career of a Popular Hero*, London, MacMillan, 1987. p1

[3]Ibid., p64

notorious, but by no means singular within the world of SF TV, nor outside it either. *Dr. Who*, *Blake's 7* and *The Prisoner* all have active fan groups, as does *Cagney and Lacey*.

Cassandra Amesley has referrred to "the proprietary audience" of *Star Trek* in this regard, defining the term to cover those viewers

> "[w]ho appropriate the primary elements of a mass mediated narrative and actively rewrite it."[4]

She acknowledges a difference between peripheral and 'hardcore' fans, but includes both types in the proprietary audience, acting in 'cells' to rewrite the texts each time they are re-viewed, mediating the viewing experience, and initiating newcomers into a mode of viewing with particular rules, the most essential of which is that the accompanying commentary must take an ironic stance.[5]

The principal uses to which fan audiences seem to put *Star Trek* material (like using the characters in personal fantasies, even, according to Karin Blair, feminist fantasy work[6]) are not the concern of this examination as they have little involvement with considerations of the future. Fan activity which is relevant because it can make operative the constraints of previous versions of the fiction, involves attempts to intervene directly in the construction of the text at source by, for example, writing to the producers and, as Amesley describes,

> "viewing this act as part of a negotiated process rather than as a plea from an undeserving outsider."[7]

This started quite early. When Paramount threatened to cancel the initial TV series after the second season, an organized write-in campaign reversed the decision, but scheduling variations reduced the audience and ensured that

---

[4]Cassandra Amesley: "How to Watch *Star Trek*", *Cultural Studies*, 3(3), 1989, pp323-339. p324

[5]Ibid., p337

[6]Karin Blair: "Sex and *Star Trek*", *Science Fiction Studies*, 10(3), Nov. 1983, pp292-297. Anne Cranny-Francis has also detailed some fan uses of the series in "Sexuality and Sex-Role Stereotyping in *Star Trek*", *Science Fiction Studies*, 12(3), Nov. 1985, pp274-284.

[7]Amesley: "How to Watch", p324

the insufficiently profitable programme did not continue for a fourth year. The extent to which such behaviour influences the film-makers is uncertain, but it seems reasonable to assume that the knowledge that quite possibly thousands of letters would arrive complaining of errors in design or characterisation would ensure attention was paid to continuity across the films. Amesley emphasises that continuity is not just demanded of the sets, but also of the characters and their perceived motivations; action and dialogue may be condemned as not the sort of thing that Kirk would really do (or say).

There are some examples of fan activity being noticed by those producing the films (as opposed to exploited by those promoting them). Because it was both heavy and hard to light, the effects crew disliked the model of the *Enterprise* built for the first film, but the joint demands of consistency and cost required them to use it until it could be totally replaced by a different design. The ship had however acquired almost totemic potency with the fans. Hence the comment of Ken Ralson, the visual effects supervisor on *Star Trek III: The Search for Spock* , who destroyed it:

> "I'll be interested to be in the opening night,
> when all the hard-core fans are there - as long
> as nobody points to me and says "There!
> That's the guy who blew up the *Enterprise*" ".[8]

The continuing availability of the original cast makes it possible for some aspects of the constraints of the past, particularly those relating to characters, to be applied quite rigorously. Their very presence gives a continuity and intensifies demands for character consistency, unavailable in sequels with new casts or all new characters. It has increased the frequency of the slippage between actor and character familiar for all long-running TV fictions. The slippage is most noticable for Leonard Nimoy/Spock, especially as among occasional viewers he often suffers a further slippage, acquiring the title of doctor actually owned by Benjamin Spock, childcare expert and famous 60s figure of opposition to the Vietnam war, characteristics which do not seem inappropriate to the fiction.

There is something of an indication here of a particular role *Star Trek* plays by virtue of its public recognition and pervasiveness.[9] At the end of the

[8]Quoted in Brad Manson: "The Last Voyage of the Starship Enterprise", *Cinefex*, No. 18, Aug. 1984, pp42-67. p 43

[9]It is still asserted that every day an episode of *Star Trek* is screened somewhere in the world. As a personal testament in support, I have seen episodes in Australia in the 70s,

first chapter, I quoted a comment by an American Congressman hoping that a joint US-USSR Mars mission would move superpower politics from Star Wars to a star trek. This is precisely just such an indication of a publicly recognsed reference. *Star Trek* functions as a very fruitful source of references and convertible images because of the familiarity with many of its tropes that can be assumed both by people encountered in everyday life and by those constructing mediated messages. For example a 1987 article on the modernisation of the BBC drama studios pointed out how under the new system

> "drama is created in an atmosphere in which Captain James T. Kirk would feel comfortable".[10]

No explanation of who the Captain was was given. It was no doubt assumed that he would be recognised and the implied array of lights and switches conjured up. It is noteworthy that the *Star Trek* reference is not being used here to connote the future. Instead it describes the present day, but the up-to-the-minute present day. The temporal associations are complex. A programme designed and made in the late 60s, ostensibly set in the twenty-third century, is referred to in the late 80s to describe the most modern of 1987 designs.The conflation of time in a period of weakened historicity could hardly be more thoroughly displayed.

STAR TREK AND HYPERREALITY

The wide public recognition and the pervasiveness of the fictions makes possible the kind of convergence of fiction and non-fiction which was explored in the previous chapter as a manifestation of the concept of hyperreality. It was pointed out there that this kind of convergence only applied to the extent that extra-textual material was attended to; with the *Star Trek* Phenomenon, this is considerably more probable than it would have been for *2010*. This section of the chapter will explore the convergence of fiction and non-fiction around *Star Trek* and whether it is reasonable to describe it as a manifestation of hyperreality. It is most evident in the relationship between NASA and *Star Trek*. From the very beginning of the TV series, NASA and the Rand Corporation provided advisers

> "to guarantee a scientifically accurate programme

Japan in the early 80s and Britain in the mid-80s.

[10]Ray Hammond: "Radio Play Days", *The Guardian*, 25 May 1987, p5

based on the technology of today projected
into the foreseeable future".[11]

It is not likely that any organization would now regard the twenty-third century as within the foreseeable future; it is not just space, but also time that has contracted. During the last decade attempts at reasonably based projections have rarely gone past the first half of the next century.

Jesco von Puttkamer, the technical consultant on the TV series, was from NASA. One of the illustrators had worked at NASA previously and Lee Cooke, one of the graphic artists, had designed some of the console of the B1 bomber.[12] There are several consequences of this level of involvement: the fictional hardware can look convincing; publicity about the involvement can prepare the audience to find it convincing; and there is a reflection back on the institutions involved to decrease their apparent distance from ordinary people as well as reduce some incomprehension about their activities. While this is definitely an instance where the fictional and non-fictional are converging, it is debatable whether this kind of interaction can be described straightforwardly as hyperreal when what is happening is a circular process involving the reflection of the 'real' on the fiction as well as the reverse.

More definitely characteristic of the hyperreal, were instances when the fiction started to be seen to carry the potential to feed in to the look of the immediate future itself. The US Navy sent a delegation to examine the TV series' bridge set with a view to adapting it for one of their aircraft carriers under construction.[13] Some medical personnel similarly examined the diagnostic couch in the *Enterprise* sickbay.[14] The intermingling of fiction and fact even impinged on the past. After the series finished, the Smithsonian Institute took a lot of the material for its archives and has the studio model of the *Enterprise* hanging in its Air and Space Museum.[15]

Perhaps the strangest example of the blurring of the boundaries of the fiction relates to the naming of the first Space Shuttle, which is also a further

[11]Margaret Bailey: *Live Long and Prosper: The Star Trek Phenemenon*, Rutgers University GSLS Occasional Paper No 76-2, New Brunswick, New Jersey, 1976. p.iv

[12]Walter Koenig: *Chekov's Enterprise*, New York, Pocket Books, 1980. p26

[13]David Gerrold: *The World of Star Trek*, (Revised Edition), New York, Bluejay, 1984. p24

[14]Bailey: *Live Long*, p.iv (One should not accept these claims uncritically. The people involved may merely have wanted some excuse for their curiousity, or have been engaged in no more than PR activity.)

[15]John Peel: "Twenty Years of *Star Trek*", *Starburst*, 9(5), Jan 1987, pp48-52.

demonstration of the influence of the proprietary audience. Secondary material on *Star Trek* is full of references to Trekkie letter writing campaigns, and this was one of them. While most of the American public was losing interest in the Space Race (the leg to the Moon having been won and no new similar goals having been set), Trekkies were engaged in a campaign to persuade the President that a Space Shuttle should be named *Enterprise*. Apparently to NASA's and the *Star Trek* cast's surprise (and neither assertion seems very credible), they were successful.

Because the tone of much of the secondary material on *Star Trek* is telling, as well as the particular significance of this instance, two lengthy reports of the incident follow. The first is that of Walter Koenig, the actor who has played Pavel Chekov since the second TV series. He described how the cast had been invited to the rolling out of Shuttle Orbiter 101 and were seated in a special section of the audience. There had been some rumours about the revival of *Star Trek* and the cast were used to all manner of special treatment by SF devotees and NASA officials, so perhaps they could have imagined their presence to be relatively routine. Koenig recalled the Associate-Administrator of the Office of Space Flight for NASA, John F. Yardley, calling for action,

> "[t]hen it happened. The band leader moved his hands with an emphatic gesture and suddenly we were all standing and shaking hands and embracing each other. *The space craft was approaching to the theme music from Star Trek.* The same chill ran down all our spines. I can't remember seeing a group of people so moved as those in the row beside me. I felt myself close to tears and wasn't in the least embarassed by it. Orbiter 101 was now directly in front of us. Who says there has to be a line between reality and fantasy? . . . Across the nose of the ship was the word *Enterprise*.'[16]

The second report of the same incident comes from Jesco von Puttkamer, by this time Long Range Program Manager for NASA, speaking on the *Equinox* programme "A Short History of the Future: The Spaceship" (C4, first tx. 28 August 1986).

> " . . . 17th September 1976 was a day when fiction and fact actually met in a moment.And that was

[16]Koenig: *Chekov's Enterprise*, p16

> when the very first Shuttle Orbiter was rolled out in Palmdale in the Mojave Desert in California. We had received thousands of letters from *Star Trek* fans petitioning the Government, President Ford at that time, to name the first shuttle *Enterprise*. In the moment when the word *Enterprise* appeared round the corner, the entire band struck up the theme from *Star Trek* and we all looked over there and there was Leonard Nimoy, Mr. Spock, and all the other cast members from *Enterprise*, Scotty, Jimmy Doohan . . . and when that music had finished, there were tears of joy and people jumped on their chairs clapping, grown-up people, politicians who never smiled in their lives, actually broke up. And it was very magic, in the sense that here almost a cartoon, a science fiction dream had touched reality and people had felt moved by it. Some nerve, some core in them had been struck. And that was pretty significant because it showed that, yes, these people, whether grown-up or children have a pretty close tie with the future and they could relate immediately with this Shuttle Orbiter called *Enterprise* and that dream of a starship called *Enterprise*" [my transcript].

Koenig's question , "Who says there has to be a line between reality and fantasy?" and von Puttkamer's statement about fiction and fact actually meeting for a moment, both stress the integration of the *Star Trek* story and the NASA story. They are indications, as the entire episode and both recountings of it also are, of the importance of the concept of the hyperreal, but also of the care with which it should be applied. Despite the two comments, neither observer seems at all unsure of the heirarchy in which the fiction provides a layer of PR prettiness, puff and sentimentality over the reality of an experimental space vehicle (designed furthermore as the first stage in making space an ordinary place where commercial considerations could come into effect). This layer was quite literally superficial in that the name was merely painted on the Orbiter, but nonetheless it provided the basis for popular identification with what might otherwise have seemed rather tediously technical. (Not all records of the incident report it with this emphasis. A writer unconnected with the TV programme mentions merely the presence of unspecified 'guest celebrities' and gives no provenance for the name.[17])

[17]Melvin Smith: *Space Shuttle*, Sparkford, Haynes, 1985. p133

Von Puttkamer, as one might expect of someone who had worked on the Apollo programme and been the NASA consultant on the TV series, makes much of the links. He points to the TV series also acting as a replacement for the Apollo programme, which ended as the re-runs began. Yet the *Enterprise* was only the prototype of the shuttles and made just five free flights before being retired. Ironically it was never even made space-worthy. It is also worth emphasising that the fan activity was concerned with the most cosmetic of activities - the naming of a craft in the process of being developed. It was not concerned with a substantial matter of space exploration, such as a mission to Mars, or increased funding.

1976-8 seems to have been the high point of NASA's use of *Star Trek*. Early in 1978, they hired Nichelle Nichols, the actress who plays Lt. Uhura, to help their recruiting campaign. They were worried about the poor rate of application from women and minorities. After her coast to coast tour of colleges and engineering conventions, applications from women and minorities increased very substantially, as did the overall number of applications.[18]

NASA was again involved in giving advice when it was decided to make the first *Star Trek* film. Paramount had intended to develop a fourth US TV network and promote it through a new series of *Star Trek*, but this fell through. The idea for the film was in wake of this and after *Star Wars* had shown a renewed popularity/profitability for SF films. The films took the NASA reality back in too. While a character is being given a tour of the ship in *Star Trek: The Motion Picture*, a display on the wall of the recreation room is pointed out with the comment that "All of these ships were called *Enterprise*". The Shuttle is one of them, as is a warship. Many of the ships belonging to the fictional Starfleet have names from NASA's history, like *Columbia*. There are even NASA in-jokes. Alert viewers hearing the ship orbiting the Genesis planet in the third film called *Grissom*, know it is doomed; Grissom was the astronaut who let the side down by ditching his capsule in the ocean.[19]

More recent use of *Star Trek* by NASA has not been very noticeable and probably would not have been appropriate once the Shuttle programme got fully underway. It became necessary to indicate the ordinary, routine nature of

[18]Koenig: *Chekov's Enterprise*, p50 (Applications from women went from 60 to 600, overall applications from 1600 to 8000 and 1000 applications from minorities - previously virtually none from blacks. The ambiguity of the last instance is Koenig's.)

[19]Gregory S. Sojka: "The Astronaut: The American Hero with "The Right Stuff"", *Journal of American Culture*, 7(1&2), Spring-Summer 1984, pp118-121. p120

space flight, indeed of space business, and this was the reverse of what the *Star Trek* links provided. *Star Trek* could be used to promote exploration and the far future. It could not be used to project mundanity or the economic and it was not all that useful for military aspects either.

Yet the nature of the hyperreal is to seek to displace the 'real' by its excess and its glitter and its 'moreness'. Does this example of twenty years of interrelatedness really demonstrate it? The fictional entertainment and the government instrumentality used one another, the former hoping to heighten its authenticity and the latter its popular appeal, but there seems no evidence that NASA was displaced by **this** fiction. The level on which hyperreality operates, if it did or does, must be highly speculative. It is very difficult if not impossible to point to an instance when hyperreality in its full sense is demonstrably operating. The concept describes a possible relationship when the boundaries between fiction and 'reality' are unfixed and the fiction adheres to the 'real'. The most that may be seen in these *Star Trek* examples is a blurring of the boundaries. How any adhesion could work would vary. Perhaps when NASA is spoken of within political discourse, it draws part of its legitimacy from the *Star Trek* fictions. When in the wake of the Challenger disaster, the practice of accepting the lowest tender for Shuttle components was being criticised as inappropriate for such a body and in such an instance, was the expectation that cost-cutting should not be dominant in space activities, influenced, even determined, by the 'higher morality' of *Star Trek*? Space, it was argued in newspaper articles and on television news, was special; economic motives should not be primary. This is certainly not the message to be gained from other contemporary space-set films. Within less public, more minor, discourses (scientific-adventurist, technophallic/military, aerospace industrial) economic concerns proliferate - the various target dates for the Mars Mission were all ordered in terms of cost. Of the available fictions to call on in explaining the tragedy, the most influential may well have been *Star Trek*, with its long term associations with NASA. None of its various plots had presented the economic as laudable.

THE NOSTALGIC FUTURE

Star Trek provides a large body of fictional material about the future, but what kind of future does it portray? This section suggests that the constraints tha come from the 60's genesis of the *Star Trek* fictions mean that this future can be described in a way that may seem at first rather bizarre - it is a **nostalgic** future. All the standard uses of the term 'nostalgia' refer to the past:

to a present longing for past circumstances; or to a fascination with objects of the past; or to the attempted evocation of past structures of feeling. The eruption of the future into the relationship between the present and the past is unusual, but not by any means impossible.

In suggesting that the *Star Trek* films depict a nostalgic future, is it being asserted that they are examples of what Fredric Jameson has termed postmodern nostalgia films? For Jameson, such films convey 'pastness' through intertextual references, especially stylistic ones and he instances *American Graffiti*, *Body Heat*, and *Chinatown.*[20] This does not describe the *Star Trek* films, nor do Jameson's examples continue past narratives ostensibly without alteration, as the *Star Trek* ones do, nor are Jameson's concerned with the future. A comparison with other films which purport to consider the future and are more marked by nostalgia in the Jameson sense - for example, *Brazil* (1985) and *1984* (1984) - makes the distinctiveness of *Star Trek* clear. Both *Brazil* and *1984* use the **style** of the 40s to carry a past sense of the future, though *1984*, because it is based on Orwell's novel, deploys more than style. Their difference from the *Star Trek* films is due to the different past on which they draw and their absolute freedom from the restraints placed on 60's US TV, but they both fit Jameson's description in the dominance of their surfaces, their 'looks'. The 'looks' of the postmodern nostalgia films are excessive since they carry the bulk of the reference to the past and since they demonstrate the depthlessness of the representation.

The 'look' of *Star Trek* on the other hand, is dominated by a stark spaciousness and cleanliness that is another aspect characterising the nostalgic future. This is particularly evident in the fourth *Star Trek* film in which time travel enables differences between the present and the posited future to be noted and which emphasises cleanliness, quietness and the absence of uncouth language. With no litter and spare, even sterile sets, this future resembles that depicted in films of the 30s, as in the latter part of *Things to Come* (1936), for example, more than it does most contemporary SF films.

This indicates a different aspect of the operation of the prior constraints. While the TV series had a budget that was quite large by the standards of the time, a substantial proportion was earmarked for special effects. Not much was left for sets, so the interior 'look' of *Star Trek* was visually impoverished compared to other films and even to other TV programmes.[21] TV set dressing

[20]Jameson: "Cultural Logic", p66-7

[21]It cost approximately US$200,000 per episode, but *Mission Impossible* apparently cost

in the late 60s was rather basic and the size of the screen, the low definition of the NTSC system as well as the size of the budget, predicated against a lot of people being present in a scene simultaneously. The sparse 'look' of *Star Trek* films though, carries only a tiny part of the message of the past and can easily be abandoned - as it is for effects shots outside the ship.

At the end of the most recent of his examinations of nostalgia, Jameson muses on the differences between

> "a strongly generational self-consciousness,
> such as what the "people of the sixties" felt",[22]

the aimlessness which followed, and the emergence of a putative non-generational specificity in the 80s. This has not marked a return to the 60s, despite indications that it might. He certainly is not discussing the *Star Trek* films, nor does his category of postmodern nostalgia films include them, but the relevance seems inescapable and will be examined further later in this chapter. His 'nostalgia for the present' could well also describe the nostalgic future.

Malcolm Chase and Christopher Shaw have stated that there are three preconditions for the development of nostalgia: time must be perceived as linear and the future indeterminate; the present must be perceived as deficient in some way; and objects or images from the past must remain available.[23] The current prevalence of nostalgia in cultural life has been widely noted (the reference above to Jameson is just one such instance) and is a significant component of descriptions of the post-modern sensibility - there seems no need to demonstrate anew here that the preconditions are met in current Western societies. The particular application of these preconditions in the current chapter rests on the sense that the way in which the present is deficient, following Chase and Shaw's preconditions, manifests here as a lack

---

30% more [Fisher: "Leonard Nimoy Focusses", p37], and ten years later *Battlestar Galactica* was reportedly costing US$1 million an episode [Gerrold: *The World of Star Trek* , p113]. The budget for *Star Trek: The Next Generation* was $1.25 million per episode [Peter Fiddick: "Captain of the Starship", *The Guardian*, 25 April 1988, p25]. The sets now are not quite as spare, but still spacious; the much larger cast probably accounts for a substantial part of the increased budget.

[22]Jameson : "Nostalgia for the Present", p536

[23]Malcolm Chase and Christopher Shaw: "The Dimensions of Nostalgia", in Malcolm Chase and Christopher Shaw (eds.): *The Imagined Past: history and nostalgia*, Manchester University Press, 1989. pp2-4

even in its visions of the future. This deficiency can easily and nostalgically be noted in comparisons with available past visions of the future, especially the still widely screened *Star Trek* TV series.

David Lowenthal, in arguing that nostalgia is far more pervasive historically than most people believe, has pointed out that

> "[a] perpetual staple of nostalgic yearning is the search for a simple and stable past as a refuge from the turbulent and chaotic present",[24]

but adds that contemporary nostalgia is characterised by a multiplication of this. The past is envisaged as having been

> "unified and comprehensible, unlike the incoherent divided present."[25]

Similarly, futures envisaged in the past, like *Star Trek*, may seem unified, unlike the incoherent futures of films such as *Blade Runner* (itself at times described as a nostalgia film in the Jameson sense - either directly through its reworking of the *film noir* mode or indirectly through its scenographic pastiche[26]).

Although Lowenthal disputes its distinctiveness,[27] another characteristic held to be particular to contemporary nostalgia is that it is for the recent past, within, or almost within, the memory of those enjoying it. It is linked to childhood no longer just by analogy, but also directly, as the nostalgic desire becomes focussed precisely on objects and experiences, including the televisual, encountered then. The clarity and simplicity associated with the childlike can be found in the moral as well as the spiritual universe of *Star Trek*. Nostalgia is not however simply a characteristic of the contemporary post-modern sensibility (or more generally of sensibilities in times of rapid change), it is a characteristic regarded with a degree of hostility or contempt or confessed to rather shame-facedly. The term 'sentimental' is often associated with it and it is seen as a rejection of 'reality'. Both of these, and the contempt, may be noted in reactions to *Star Trek* and its afficionados.

---

[24]David Lowenthal: "Nostalgia tells it like it wasn't" in Chase and Shaw: *The Imagined Past*, p21

[25]Ibid., p29

[26]e.g.Guiliana Bruno: "Ramble City".

[27]Lowenthal: "Nostalgia tells it", p20

Like pastiche, with which it is commonly associated, nostalgia is counterposed to the authentic. It only ever involves a partial rejection of the present; selected elements of the past (or of various pasts) are incorporated with selected elements of the present into a pastiche of allusions that may only represent what the past feels like in the present. Current *Star Trek* offerrings are not just recreations of past visions of the future, they are selected, pastiched combinations with their own distinctiveness.

The nostalgia associated with *Star Trek* is not simply manifested in continued viewing of the TV series of the late 60s, nor in the collection of ephemera associated with them, but also in the formulation, construction and consumption of current derivations like the films and the descendant TV programmes. Nostalgia is operationalised through the strong way in which the current fictions are constrained by the past ones. The comprehensible, unified vision of the future must itself remain unified, comprehensible and consistent.

MORAL DISCOURSE IN THE *STAR TREK* FILMS

Until this point it has not been necessary to provide detail about the plots of the various *Star Trek* narratives because the arguments about constraints, hyperreality and the nostalgic future have all referred to the Phenomenon or to the fictions as a whole. In this section, however, the argument will be that neither scientific nor economic discourses are dominant within the nostalgic *Star Trek* future, instead a moral, ideological discourse reigns. Quite extensive detail, especially about the first four of the films, is required as the basis on which to discuss this. (There will be no outlines of the seventy-nine TV episodes. Insofar as there were distinctive patterns, or important individual episodes, they will be described when appropriate.)

Until recently, the first film appeared very much the odd one out, although it is similar in plot to the TV episode "The Changeling". It was not part of the story which united the next three; it had a different producer (Gene Roddenberry, from the TV series, as opposed to the later films' Harve Bennett); it cost substantially more (US$44 million, as opposed to $12 million for the second, $16 million for the third and $23 million for the fourth[28]); and it was adjudged unsuccessful - despite having by now taken more money in rentals than any of the others apart from the fourth. Kim Newman has however suggested that the fifth film serves to integrate the sequence by being a mirror

[28]Figures from Gerrold: *The World of Star Trek*; Bob Fisher: "Director Leonard Nimoy focuses on *Star Trek III*", *On Location*, 7(2), April 1984, pp34-40; and Sara C. Medina: (no title), *Time*, 23 June 1986, pp46-47.

image of the first in its physical search for a higher being (for most of the film thought to be God).[29]

The plot of the first film involves the return to Earth of the NASA probe Voyager 6 as an intellectual entity called V'ger. It demands to meet its creator and threatens the destruction of Earth if it is not satisfied. This is eventually resolved by its incorporating two members of the *Enterprise's* crew to become a new, and less destructive, form of being. The threat from Earth's own probe had arisen because of its primitive all-encompassing programming, which was based on the instruction to "Collect all data possible". When enhanced by the inhabitants of a machine culture encountered after it fell through a black hole, this was taken literally. In the subsequent collecting process, "it amassed so much knowledge, it achieved consciousness itself. It became a living thing", as Kirk puts it. The Earth is saved from the consequences of Twentieth Century American curiousity and poor computer technique by love (Decker, the younger Kirk figure's, for Ilea, the Deltan who has been replicated by V'ger as its own probe) and self sacrifice.

The important though latent message of this film is that the old team is back together again, beating off the threat to Earth and moralising in the accustomed style. As David Gerrold writes

> " The finest moment in the movie, of course, occurs when the new *Enterprise* begins to move majestically out of its orbiting drydock. It is a moment to bring a lump to the throat and a tear to the eye of even the most jaded science fiction fan. It is nothing short of wonderful."[30]

The music for this remarkably long scene employs every known device to ensure this reaction but one - it does not use the old theme music. That is not heard at all in the film until Spock joins the crew while they are on their way to a rendezvous with the at-the-time unknown threat. After he has been sworn back on, there is a cut to an exterior shot of the *Enterprise* and **then** the familiar theme is heard. This is massive reassurance that all is as it was, that the pleasures of the 60s are still there for the taking. This is an evocation of the nostalgia which has earlier been argued to characterise the particular *Star*

[29]Kim Newman: Review of *Star Trek V: The Final Frontier* in *Monthly Film Bulletin,* V56, No 670, Nov 1989, p347

[30]Gerrold: *The World of Star Trek*, p172

Trek future. It is also an acknowledgement that one of the pleasures of genre films comes from the repetition of the familiar, of what has given pleasure in the past. There will be a return to the issue of reassurance, especially when it is linked to the 60s, in the final section of this chapter.

With the second film, something other than the joy of reunion had to be offerred. This is frequently referred to as the best of the quintet and its plot lines continued through the next two films. It took up the final line of the TV episode "Space Seed", where Kirk, having marooned the genetically developed but psychopathic superman, Khan, and his followers on the desert planet, Ceti Alpha V, muses, "I wonder what will happen twenty years from now?" In less than that either diegetically or in the time elapsed between the production of the TV programme and the film, we find out, as Khan seeks revenge.

The choice of this as the episode to be followed up was no doubt influenced by the continued availability and status of the guest star, Ricardo Montalban, and by the increased newsworthiness of genetic engineering. At the time of the TV episode, 'engineering' had not been linked with genetics in popular discourse. Khan was "a refugee from the Eugenics Wars of the late Twentieth Century".[31] He had advanced physically and intellectually, being smarter and stronger than 'natural' man, but degenerated morally. After the wars of the 1990s, humanity had presumably turned aside from genetic engineering. The undeveloped sub-text here rejects the view that progress cannot be stopped, taken to mean that if something becomes technically feasible, it is impossible **not** to exploit it. This same message can frequently be found elsewhere in the TV series, again indirectly.

However while genetic engineering may have been abjured, tampering with the stuff of Nature itself has not. The other plot line - the development of the Genesis device, which in a matter of six hours would render lifeless planets habitable - brings up many of the same questions without the inescapable contemporary relevance, since it (unlike genetic engineering) is based on totally spurious science. Hence, the intervention of people in the area hitherto reserved for God or Nature is explored in two ways: one close to us and castigated - tinkering with human beings; and the other more distant and open. The Genesis device is not totally unquestioned; McCoy worries about its ethical implications in a decidedly religious way, and Khan intends to use it as a weapon. These pale beside the visual impact of the greening of the dead planet. The sub-tropical vegetation glowing through the dawn mists calls

[31] Ibid., p181

on traditional edenic images to ensure that the audience need have no serious fears about Spock's future as his body (he has sacrificed himself to save the *Enterprise* crew) lies in its burial casket in such a paradise.

That this was indeed pre-lapsarian became evident in the third film, made and released against a background of increased lobbying against genetic engineering and biotechnology. In 1983 Jeremy Rifkind had published the religious and pseudo-scientific tract *Algeny* as part of his attack on biotechnology, and his Foundation on Ecological Trends was very active.[32]

The third film opens with various manifestations of the dead Spock which cause the *Enterprise* crew to decide to recover his body. While they are on their way back to the Genesis planet, the audience discovers that the planet has become dangerously unstable and will explode in only a few hours. Kirk's son, David, had taken a short cut in the development of the device; he had "used protomatter in the matrix". Saavik, the Vulcan science officer who is accompanying him on the scientific examination of the planet, is disapproving, saying that protomatter is an "unstable substance which every ethical scientist in the galaxy has denounced as dangerously unpredictable". David explains that if he had not used it, the development of the device "might have taken years, maybe never". He eventually redeems himself by dying to save Saavik and the growing Spock-child they have found on the collapsing planet, but the point is clear, meddling in creation is wrong and seems to be achieved only by 'bad' science. Furthermore with the reference to 'protomatter' and ethical scientists, we are again told that it is right not to pursue every scientific possibility.

The fourth film dealt with another result of interfering with Nature - the conservation of the whale. Conservation, rather than the whales themselves was the important part of the message as far as the film-makers were concerned. If the models of the whales had not proved convincing (no footage of real whales was ever used), some other threatened species was apparently held in reserve.[33] Although the reason for conserving the whales is severely practical - the earth will be destroyed by a whale-seeking probe otherwise - a more general message about hunting animals to extinction occasionally surfaces. The possible intelligence of the whales is implicit - presumably the

[32]Leon Jaroff: "Fighting the Biotech Wars" and "The Peripatetic Crusader", *Time*, 127(16), 21 April 1986, pp80-82.

[33]Jody Duncan Shay: "Humpback to the Future", *Cinefex*, no.29, Feb 1987, pp4-31. p6. The alternative creature was unfortunately not specified.

probe would not be interested in them rather than the humans, if the matter were not in question. There was no direct development here of a story from the TV series, but conservation did continue the concern with ecology; it was an issue that could credibly be represented as having a high-profile and considerable public sympathy in the 1980s; and the figure of the whale echoed the series' intermittent concern with lovable monsters.

The narrative involves the crew returning to Earth to face court martial for having stolen the *Enterprise* to rescue Spock in the third film. On the way they encounter the probe and decide to return to the twentieth century (1986, in fact) to acquire a pair of whales to restock the future Earth waters.

The time travel aspect of the film deserves special attention. It is by no means unique in the *Star Trek* corpus. The TV series took viewers back in time more than once ("The City on the Edge of Forever" and "All Our Yesterdays", for example). Time travel is very useful and common in SF TV series, giving a variety of settings, usually cheap costuming and the constant plot interest of anachronisms and time paradoxes. With films too it is a hardy perennial, but not always popular. In the 80s though, time travel was good box office. *Back to the Future* (1985) has been the most successful, but there have been others like *Peggy Sue got Married* (1986) and *Somewhere in Time* (1980). In these characters go back from the present to the past. Films in which the present is experienced as the past or future, like those in which an alien visits present-day Earth, foreground certain contemporary customs and practices as strange and mutable.

A phenomenon highlighted in films where people come from the past, or go into it, is one that it is known will change. Where people coming from the future, or aliens are concerned, the elements emphasised are those thought likely to change and those ignored are those perceived as unchanging. As with other situations, the 'natural' is invisible. The first aspect to be made visible in *Star Trek IV* is litter collection, then the crowd, the bustle and the untidiness of the streetscape. This is both visibly and aurally a shock after the sparsely populated shots of the far future. Even the whole assembled crew seen in the first film, including at least one hundred and fifty actual Trekkies,[34] was uniformed, still and standing in a vast tall space.

The future, *Star Trek* assures us, will be quieter. Spock reinforces this when in twentieth century America he disables a punk with an excessively loud ghetto blaster. In the future, population pressures too will be eased - though whether this is to be attributed to interstellar colonization, nuclear

[34]Gerrold: *The World of Star Trek*, p169. Yes, he was one of them.

disasters or the Eugenics Wars is unspecified. Spock's disdain for a culture that is having a "brief but disastrous flirtation with nuclear fission", adds further to the theme of renouncing dangerous scientific developments. People will be better mannered in the future too - uncouth language is foregrounded by Spock's totally unsuccessful attempts to use it. The police will be more helpful and the Navy less security conscious.

Invisible - at least in the sense that they pass without comment - are pawnbrokers, buses, museums, factories, the private ownership of cars, the profit motive, sexual-social relations and joggers. The two lists are most informative. So many of the things that worry people today - from bad language to nuclear power - will no longer be present in the future envisaged in *Star Trek*, but that far happier time will still be recognizable.

The greatest advances however will be in medicine. Twentieth century health care is far more castigated than nuclear power. The high profile accorded McCoy in the series meant that medicine was always privileged. The advances in healing projected for the future are paralled only by those in transport mechanics. The sickbay on the *Enterprise* was always a place of wonders, as was the ultimate diagnostic tool the doctor carried with him. Even so, progress continues to be rapid. As McCoy returns to the *Enterprise* in the first film - after an absence of no more than two and a half years - he comments sourly how he expects the sickbay will now look like a computer centre. This describes our world, especially the shift from the 60s to the 80s.

In the fourth film, McCoy actually confronts twentieth century medicine, when Chekov, injured in a fall from a destroyer, must be rescued before some medical 'barbarities' can be forced on him. The proposed operation to drain the fluid building up in Chekov's skull enrages McCoy and he violently assaults its proposers. Instead a hand held mechine hums and flashes and Chekov sits up. Surgery, it would appear, does not have a future.

The descendant TV series, *Star Trek: The Next Generation* has an all new cast and initially, outside the US, different distribution patterns. (Although screened on network TV in the US in 1988, it was at first only available on video in other countries - not being screened on BBC2 until late in 1990.) The more recent TV series will not be treated as of equal weight to other elements of the Phenomenon both because of the distribution pattern and the totally new cast. Set, as the title indicates, further in the future than the original creation, it posits a new *Enterprise* with a much larger crew, engaged on basically the same kind of mission and encountering many of the same type of situations. Its more contemporary aspects are carried largely by changes in

the composition of the crew, though these unsurprisingly inflect the situations they meet.

The *Star Trek* Phenomenon and the *Star Trek* texts provide a large body of material which talks about the future, but does so without making major claims on either scientific or economic discourse - as other space-set fictions do. Indeed it can be seen to dispute most strongly the role of the economic in talking about the future. Within these fictions economic discourse has no place in any 'regime of truth', nor any special explanatory power. The lack of importance of any economic motive for the crew's actions is characteristic. Only villians can be motivated by the prospect of financial gain and even this is very rare; V'ger wants knowledge, Khan wants revenge. The economic is usually unspoken. There is, for instance, no suggestion that behind the exploratory mission of the *Enterprise* will come trade or mining vessels, nor that power lies in the hands of transgalactic corporations. There is no complaining among the crew about their pay; in the fourth film Kirk's awareness of cash and pawnshops is explained by his being an amateur historian of the twentieth century.

This virtual rejection of the economic is not precisely the case with scientific discourse. **A** scientific discourse does appear quite strongly throughout the fictions. The technology that powers the *Enterprise* and the capabilities of the various devices the crew use are frequently referred to; and it is usual for 'inexplicable' objects encountered to have been accounted for rationally by the end of a particular plot. The 'science' that is called on for this is treated as having a privileged access to the truth. But the scientific principles and practices it posits are not grounded in current 'real world' science, as they are, for example in *2010*; *Star Trek* unashamedly speaks nonsense words ('warp drive', 'stun factor') and treats them as if they were scientific. The science that operates in the *Star Trek* universe is unambiguously a 'pseudo-science', internally validated, perhaps even more certain than the science that operates outside it, but it cannot be challenged or altered by developments in this 'outside', 'real world' science. There is no attempt to blur the boundaries of fiction and non-fiction here.

A most notable example of the distance between *Star Trek's* pseudo-science and 'real world' science occurred when the pseudo-science posited as having created the superman in the TV episode "Space Seed" became more scientifically feasible through 'real world' developments in genetic engineering. Instead of increasing reference to it to heighten the credibility

and scientificity of the fiction, as would surely have been the reaction of most makers of SF films or TV dramas, the scientific focus for the follow-up film shifted to another pseudo-scientific area - 'protomatter' and the terraforming Genesis device.

Outside the fictions, *Star Trek* and science are incommensurable; *Star Trek* science is treated as if it were magic. As a provider of convertible images, *Star Trek* signifies the appearance of incomprehensible technology, as with the BBC drama studios. It is not used in explanations. Its relationship with NASA is about PR, not science. Even if the visit of the US Navy personnel to the TV series' set is not regarded cynically, what it shows is interest in design, not science.

Within *Star Trek*, scientific discoveries and technologies may be declared 'wrong' and eschewed. The basis for this 'wrongness' is not that they are contrary to the pseudo-scientific principles operating there, nor even necessarily that they are physically dangerous. The 'wrongness' is morally based; the discoveries and technologies are bad. This is an indication that the discourse that is dominant is not scientific, and certainly not economic, but is moral. The important debates within *Star Trek* are always about the rights and wrongs of actions, political systems or indeed technologies. So wide is the range of phenomena pronounced upon in this way, that it is probably more accurate to describe the dominant discourse as a moral-ideological one. Unlike scientific discourse, there are possible occasions where the boundaries between fiction and non-fiction blurs as far as the moral-ideological discourse is concerned. In deciding which discourse is most potent in *Star Trek's* speaking about the future, both the fictions and the Phenomenon must be taken into account, as must its possible instances of hyperreality. The suggestion above about the possible functioning of *Star Trek*-derived perceptions of the purposes of space flight sufficient to justify the *Challenger* disaster deaths, relies on the operation of the *Star Trek* moral-ideological discourse outside the fictions.

In moral-ideological terms, *Star Trek* speaks very particularly through its nostalgia. There is no need for nostalgia to be regarded as inevitably conservative. The nostalgia that so dominates *Star Trek* is a mixture of 60's liberalism and a conservatism most evident in the fictions' faith in the rectitude and superiority of the American Way. Nostalgia is part of *Star Trek's* provision of a memory of a past way of regarding the future with hope. The connection of memory and hope for the future has been written about by Patrick Wright. He

takes from Zygmunt Bauman the term 'historical memory' to refer to a shared, rather than individual and personal, memory. He sees no reason for it to be necessarily conservative, since it is involved, among other matters, with comprehending change and transformation.[35] For Wright this memory is of public events, but also of the stories that form part of everyday life. These stories may be about personal events, but can also be derived from and about popular fictions, which provide a reservoir of shared memories. Comprehending change through reference to 'historical memory' may involve thinking forward as well as into the past. Perhaps there is a shared sense of the future, necessarily a 'popular' rather than 'historical' one, a 'popular foresight' - some basis on which we tell ourselves stories of what is to come. The nostalgic future of *Star Trek* would seem to bridge the gap between a 'historical memory' and a putative 'popular foresight' in its provision of a shared memory of a past way of talking about the future.

A problem with this is that although *Star Trek* is, as already noted, a most pervasive and popular source of allusions and collection of texts, it is also something which is subject to considerable derision. Reviews of the films and the new TV series usually have at best an affectionately contemptuous tone; and newspaper articles on Trekkies regard their activities with bemusement. When neither of the prime truth-bearing discourses are called on, the subject matter is the future and the dominating political and moral discourses are laden with nostalgia, it should be unsurprising that the fictions are regarded as extremely trivial. Nor should it be seen as incidental that the majority of Trekkies are female. Indeed, given the context, the great popularity of the films becomes the more remarkable.

The nostalgia that is carried in the moral-ideological discourse of *Star Trek* and that is effected largely through the constraints monitored by the proprietary audience is rooted in the 60s. The values the Phenomenon promulgates are based on those operating in the US in the mid to late 60s, but, as is always the case when nostalgia inflects cultural products, they are represented differently in the products of the time and those constructed since. The most profitable of the films, *Star Trek IV: The Voyage Home*, makes concrete the conflation of time involved in nostalgic representation by bringing the cast back in time from the future to the present. The role of the 60s as the spiritual home-time of the characters is made explicit when it becomes necessary to disguise Spock so that he can pass in San Francisco in 1986.

[35]Patrick Wright: *On Living in an Old Country*, London, Verso, 1985. p16

Kirk improvises a headband to cover the Vulcan's ears and eyebrows and passes him off as a brain-scrambled left-over from the Berkeley Free Speech Movement.

All manner of romanticism is forgiven because of this harking back to look forward, especially when it combines with a romanticisation of the 60s themselves. Hippies were by no means as sympathetically or humorously portrayed in the 60's episodes themselves. In the TV episode "The Way to Eden", the back-to-nature adherents, long-haired, garishly clad and sexually dubious, had in narrative terms to repent or die. The counter-cultural values condemned when the series was being made have nostalgic charm now - at least to the extent that the the 60s are figured by Peace and Love and not by criticisms of capitalism.

David Gerrold, who wrote one of the early episodes and declares himself, with some justification, the self-appointed historian of *Star Trek*, commented about the TV series

> "Its use of a science fiction background gave it the appearance of science fiction, but in reality *Star Trek* was a science-fiction-based format for the telling of entertainments for and about the attitudes of contemporary America."[36]

Gerrold is not concerned to suggest that these attitudes are at all problematic or questionable, nor that they might be diverse, and certainly not that they are subject to contestation. The core ideological terrain from which the attitudes which prevail throughout *Star Trek* derive, is an essentially undisputed liberal middle class one. It is also American-supremacist.

In fact the extent to which the world view of *Star Trek* was simply a re-enunciation of the 'American way' in its more liberal form, is striking. The mid-60s represent the very moment of American world hegemony, before the defeat in Vietnam, Nixon and Watergate and the Student Movement all began to fray it. The confidence and certainty that the American way was right and would prevail appears effortlessly figured throughout the TV series. The next part of this chapter will argue that this is a central component of the nostalgic reworking of the televisual material; that this is the stable, comprehensible world yearned after; and that this is at the base of the preferred, optimistic, vision of the future.

Certainly the films continue to depict a World Government modelled as

[36]Ibid., pp34-35

far as one can tell on that of the US. The frontier may not always be explicitly named, but it is always important. Imperialism, though never named, is also a feature of the American way which continues from the TV series into the films. So too does the tension between the couplet collectivity: individualism, but the primacy of choice usually ensures that individualism triumphs. Finally in this summary list of common characteristics to be expanded on below, there is the humanism that is linked with individualism and the primacy of choice. With its ideas of self-development and self-perfection and an ethnic pluralism which minimises the importance of difference, it underlies so much of American TV content, fictional and not, including *Star Trek* and its film derivatives. Many of these factors, but especially the humanism, are influential on the very moralistic tone of the fictions.

The most characteristic aspects of the *Star Trek* future are harmony and optimism. On Earth, harmony is brought about by representative world government and this is a major basis for optimism. In contrast, other contemporary fictional universes seem to present a choice only between domination by transnational corporations and the apparent breakdown of all government and its replacement by small warring bands of desperados. World government, or in the shorter term, increased international co-operation leading to an anticipated world order, was not uncommonly represented in 60's entertainments - *The Man From UNCLE* was only one of several programmes which featured an international peace-keeping force. The belief in world government was once well nigh universal in SF. Its composition and operation in *Star Trek* was never made clear. Spock's father, however, is the Ambassador from Vulcan to **Earth**, not to a specific nation.

Planetary defenses, as far as the *Star Trek* universe is concerned are of use only against extra-planetary threats. Conflict is between planets or more usually federations of them. Indeed the discovery of a planet with conflict between its peoples was close to a *sine qua non* justification for intervention. The presupposition that conflict between people **on earth** is inevitable (which is the SDI presupposition) and that it will involve space-based weapons, is inimical to some very basic plot devices in *Star Trek*. While SDI proponents can capitalise on *Star Trek* resonances (including the expectation that space-based planetary defense systems will be a feature of the future, common now in most TV space programmes), the reverse is not easily possible.The gigantic flashing blue probes that threaten the Earth in the first and fourth films would be morally defensible justifications for a *Star Trek* space shield, though even in these cases such use must be averted.

When the film sequence begins, the particular exploration mission of the *Enterprise* has been concluded. This resulted in the disappearance (for nine years) of one of the most important words from the TV series, each episode of which began with the words "Space: the final frontier". The word 'frontier' has particular resonances for the American population, intrinsically linked to expansion, exploration, excitement and personal challenge. It represents an area where law is yet to be established. The arrival of the *Enterprise* appears to be the first step in introducing that law - regardless of the customs and practices of the inhabitants who may or may not welcome the change.

Wm. Blake Tyrell's examination of the TV series concludes

> "*Star Trek* tells a story of the triumph of the individual over the impersonal forces of mechanization, of the inevitability of his physical needs and the rightness of his actions and of the justification of violence in the pursuit of both [sic.]. Such are the virtues of the frontier and the basis of *Star Trek's* optimism."[37]

The mechanization Tyrell is concerned with is represented by the computer, but the same point also applies to the way in which the engineer Scotty persistently triumphs over the more straightforwardly (pseudo-) mechanical. He regularly has to mend the damaged or malfunctioning *Enterprise* engines, overcome the technologies used against the crew by their enemies and solve other technological problems using inadequate resources.

Using violence to push back the frontier is at least as justified as using it in retaliation, for it is part of the process of 'civilization' where violence is neutralized or technocratized, by being part of a demonstration of superiority, often technological and always in the programme's terms, moral. Tyrell even argues that in *Star Trek*, a willingness to use violence is part of what it means to be human. Violence has generally been eliminated from the computer-controlled paradises. It is also the characteristic most closely linked to Kirk. As captain he is dominant, but he represents only one third of the central trio who together articulate the programme's concerns. His right to use violence must always be negotiatied with Spock and McCoy. This ensures that the audience is made aware of its moral justification. The use of the term 'frontier' is one way in which the viewer is prepared for violence, even for battle, and

[37]Wm. Blake Tyrell: "*Star Trek's* Myth of Science", *Journal of American Culture*, 2(2), Summer 1979, pp288-296. p295

encourages the sanctioning of both.

A frontier furthermore is the edge of one's known territory and thus an area ripe for exploration. One may rightfully push back a frontier. There is not the question of invasion as there is with a border, or even penetration as there may be with a barrier. Perceiving the undeveloped edge between the known and the unknown as a frontier rather than a barrier has many implications. As well as the rectitude of the activities there and the historical precedents evoked, there is also the way a frontier implies a broader space than either of the other two words. A frontier may be itself no less two-dimensional than a border, but there is more depth behind it. There is more 'there', there.

The term 'frontier', especially in an American TV programme, has resonances of the Western, and some of the multiple relationships between the heroes and the law prevalent in that genre can be traced in *Star Trek.* The Western hero may act (among other things) to push back the frontier and bring law, or to enforce law in the liminal area where the frontier had until recently been and the law's hold was still insecure. In the TV series each week the voice over introduction reiterated that the *Enterprise* was on a mission of exploration, thus stressing the first of these functions. Yet far more often it was the second that was the subject of the episode. Very rarely did the *Enterprise* actually enter the unknown, actually go where no man had previously - all too often they encountered other humans. At best, it seems they may have gone where man had forgotten he had gone before. (*Star Trek: The Next Generation*, while retaining almost all of the introductory voice-over, asserted its contemporaneity by changing the last phrase, not to correct the split infinitive, but to remove the sexism. It has become "to boldly go, where no **one** has gone before.")

The most common mission of the *Enterprise* was thus a policing one, concerned to make secure the distant reaches of the known, to enforce the law, or to seek out those areas where the particular code of law being operated was not acceptable to the dominant order the crew and the ship represented. The structure of many, if not most, episodes and films was of the *Enterprise* being interrupted in its mission of exploration and diverted to policing; or finding that what had been envisaged as exploration had become policing. The emphatic coupling of 'frontier' and exploration framing each episode was the principal device to ensure that exploration appeared the central activity and that the universe represented was a progressive one in which an orderly expansion of the known continued, not one in which pockets of disorder kept having to be mopped up.

The role of *Star Trek* in popularising a link between space and 'frontier', in seeing space itself as a frontier and thus ripe for development, should not be underestimated. It provides in fact another possible instance of hyperreality. The decision to give the 'real world' USAF Space Command (as opposed to the *Star Trek* Space Command) the motto "Guardians of the High Frontier", established them as the sheriffs of space, bringing the law and converting the known to the unknown. As they came into existence, into the 'real', the **final** frontier, implying the last extension of settlement, disappeared from the new *Star Trek* fictions. The term re-emerged nine years later with the new TV series and after that appeared as the subtitle of the fifth film in which the crew go in search of God. Precisely why it disappeared and why on its filmic re-appearance it was linked so strongly to the mysticism always present to some extent, but more muted in the central trilogy of the films, remains unclear. Had it become too closely identified with the military (always a problem for *Star Trek*), so that only a diminution of the public recognition of High Frontier and the sanctification of the religious could redeem it? Was there a feeling that 'final' implied no where else to go? (Afficionados worried about the film series' continuation were reassured by publicity material for the fifth film that 'final' did not mean 'last'.)

Most probably the 'frontier' was seen to emphasise the exploration mission too strongly. Before the fifth film reasserted an element of exploration, some at least of the *Star Trek* audience had become prepared for it by *Star Trek: The Next Generation* which continued both to assert the exploration mission and perform a policing one. "Space: the final frontier" is still one of the most frequently used tags which identify *Star Trek*, and the linking of 'space' and 'frontier' within the benign but expansionist world of *Star Trek* remains available.

The Star Wars program and the *Star Trek* films could intersect only distantly and extratextually, for, as was just noted, the military was a problem for *Star Trek* . This can also be traced in another way. The *Star Trek* frontier closed down from the distant exploration of the 60s to the closer-to-home threats in the films between 1979 and 1986. Without over-emphasising the point, this was the central time for the lobbying that led to the Star Wars speech and the development of it into the SDI program. The budget President Bush delivered at the end of January 1990 presented its NASA proposals (which do not include any related to Star Wars/SDI) under the heading "Expanding the Human Frontier". It is hard to think of a phrase which

encapsulates the themes of *Star Trek* better. As 'frontier' returns to the new products of the *Star Trek* corpus, politically it shifts from defense to space exploration.

The formal mission of the TV series *Enterprise* as already stated was one of exploration. This was in keeping with other SF of the period, and in the films there is an unstated assumption that Starfleet still engages in this. The silence about colonisation which presumably follows exploration, is perhaps indicative of dominant American attitudes to imperialism. Having been a colony itself, it appears difficult for there to be acknowledgement, however disguised, in public discourse, that the US (or in this case its twenty-third century replacement) could be implicated in the **creation** of colonies.

The way in which the moral justification for using violence must be negotiated among the three central characters is an indication of an area of tension and ambivalence in *Star Trek* and the American way, referred to above. The ambivalence centres around the couplet collectivity: individualism. Strong, consistent characterisation is a keynote of the fictions and, also a point on which the proprietary audience is insistent, but it is characterisation of great simplicity. Individuals are given a couple of characteristics and embody them absolutely; thus Spock is rational and unemotional; McCoy is excessively emotional, while the Captain, also emotional, is courageous and aggressive. Collectively, they may seem to comprise a whole person and their interactions as they debate, question and consider before and after action dramatise what would in a different fictional context, be an interior monologue. Yet despite this and despite the frequency with which the good of the ship/the whole crew/humanity is advanced as the justification for risk or self-sacrifice, individualism is still a more powerful force. Primacy of choice is an important issue and obviously is part of the thread of individualism. The crew's encounters with aliens or humans who have foregone individualism to inhabit a collectively organised society always require the society to be reorganised to reassert individualism.

The primacy of choice which is linked to this is also seen as characteristic of what it meant to be human. The most frequent characteristic of villians was that they denied choice, which was always seen as equivalent to slavery and quite literally inhuman. As already noted, the arrival of the *Enterprise* is often the first step in bringing law to the frontier. In more than one episode ("The Apple", for example), the *Enterprise* arrives in a paradise which Kirk adjudges unlawful because it is created or controlled by a computer. Asserting the primacy of choice, Kirk destroys the paradise. The law is meaningful only

when one can choose to obey or disobey - and of course be punished for disobedience.

The primacy of choice is also central to another motif indicated in the outline of the films - the rejection of 'wrong' or dangerous science. This is not an absolute denial of the inevitability of progress, since the constant outward bound mission of the *Enterprise* is conducted in its aura, but scientific or technological progress is by no means accepted as unavoidable or necessarily beneficial. It must be questioned and continuation chosen as in the interests of humanity (as negotiated by the dominant triumvirate).

The meaning of being human was one of the main themes explored by the series, and the importance but also the restrictive view of humanism involved, can perhaps be detected in the way in which, while self-perfection was advocated, it was certainly not suggested that this was subject to much variation. Individuals could vary in the extent to which they embodied (ideal) humanity, but the definition itself was explored by reference to the non-human. Spock's half-human half-alien nature, typified by his lack of emotions, was particularly useful here. While his rationality and superior intelligence often saved the ship or solved the problems it encountered, it was nonetheless depicted as a form of incompleteness and suspiciously machine-like. The desirability of the fully human was also explored through encounters with societies controlled by aliens and computers - both fully what Spock was only partially. Differences between humans (as opposed to inadequacies, dealt with when, for instance, societies controlled by humans who had lost their way were set right) were not something perceived to be worth exploring as far as the definition of humanity was concerned, they were not a component of being human. They were articulated on the level of character differences, in terms often designed to exploit national stereotypes. These stereotypes, like Chekov's 'Russian' cloddishness and lack of imagination, usually indicated how much closer the Americans, who were not nationally stereotyped, came to the ideal.

The meaning of being human was otherwise demonstrated demographically, both explicitly and implicitly. The way in which difference was and was not regarded as unimportant can be seen from the composition of the crew - black, white, male, female, Russian, half-alien, but all really American. Writing of the second film which had added a black male captain to the complement on the bridge, Thomas B. Byers describes this as the conventional Hollywood " 'bomber crew' ethnic pattern".[38] It is characteristic

[38]Thomas B. Byers: "Commodity Futures" in Kuhn (ed.): *Alien Zone*, p46

of the American pluralist conception of difference, where racial, national and gender differences are recognised and represented - but only to the extent that they then adhere to the norm of American-ness, as (best) articulated by white Anglo men. Lt. Uhura - female, black and with a non-Anglo name - was the acme of this, doubly different but really just the same. This was in keeping with the integrationist, melting-pot beliefs standard within the 60's liberal humanist philosophy of Roddenberry and other creators of the series. Uhura's presence was another sign of the harmonious future, in direct contrast to the deployment of blacks and women in contemporary cinematic representations of the future, where they seem more to indicate a grasp of the current recognition of demographic diversity than a pointer to a utopian future.

An examination of the demographic data reveals by implication how very much being human in *Star Trek* means being a middle class white American male or differing from it (except in the single case of Lt. Uhura) in only one particular. In the original TV series and in the films, people with power - Admirals and Presiding Judges - are late middle-aged white men with American accents. The sole exception and a telling one, is the unseen (male) Admiral Nogura in *Star Trek: The Motion Picture* - the use of Japanese as acceptable non-Caucasians with power is becoming common. In both the films and the TV series, Uhura remains the only prominent black crew member and the most prominent continuing female one. (The films provide instances of prominent female trainee officers, but they are not allowed to continue. In the most bizarre instance, when the new character Saavik continues from the second to the third film, she is played by a different actress.) Mr. Sulu as a Japanese-American also indicated an integrated crew.[39] The Russian Ensign, Chekov, was added in the second year of the TV series to provide youth appeal and should thus be seen primarily at this time as diversifying the age structure and having a more minor reference to a posited cessation of US:USSR antagonism - which would allow even Russians to become Americans. (The character Ilya Kuryakin in *The Man From UNCLE* had been much more emphatic in this latter function a few years earlier.) This has altered in the films. The humour of Chekov the Russian at large in a present-day American nuclear submarine in the fourth film does foreground his nationality - and he can certainly no longer signify youth.

Indicating a conservative component of the nostalgic constraints, any new role of prominence for a male, alien or not, in the films is played by, and

[39]For some reason, the network insisted that while the crew could be an ethnically diverse, it was to have no Chinese member. (Gerrold:*The World of Star Trek*, p153)

effectively as, a white American. The situation for females is a little different. White Americans again take all the human roles, but non-Americans (Persis Khambatta and Dame Judith Anderson) may play aliens. The way in which being human is identified with being a white American male could hardly be more forcefully demonstrated: only one variation was permissible, so if a character were female any additional variation required her to be an alien. Uhura was from the beginning the only permissible exception, the extreme case.

The notable exception to women not being in positions of significant power is Carol Marcus, the (white, American) scientist in charge of the Genesis Project in *Star Trek II: The Wrath of Khan.* Her gender is a plot necessity, since she is Kirk's ex-lover (despite the uses to which the fictions are put by devotees, the formal products are resolutely heterosexual) and the mother of his son. She thus provides both a love-interest and generational conflict. While she is positively presented in that she appears competently in charge of a major research project, in *Star Trek III: The Search for Spock* this competence is retrospectively undermined by her not having realized, or having overlooked, perhaps through maternal blindness, her son's unethical and dangerous contribution to it. Even in the film in which she does appear, a certain domesticity and thus a trivialization of her power is indicated by her comment, after demonstrating to Kirk the outstanding scientific breakthrough she is responsible for: "Can I cook, or can I cook?"

It is possible to argue that *Star Trek's* definition of the human norm, as well as being white American and male, was also middle class. Such members of the crew of the *Enterprise* as can be identified by name, or who are on screen for any length of time, are officers. The exceptions, as usual telling, are both minor and female (Yeoman Janice Rand and Nurse Chappell). The contradiction of the earlier point about only one variation to the standard human being permitted is minimised by class being easier to vary for women. Women are needed for romantic episodes when their status is determined by the males they associate with, i.e. officers. Enlisted personnel may at times appear, but they are basically set dressing.

Families are very rare in *Star Trek.* Only Spock and Kirk, who had been unaware of the existence of his son, have any identifiable family. There are no family members to inhibit crew members from joining in the escapade to rescue Spock or the subsequent return home to court martial which becomes the time trip to the twentieth century. The lack of family can be rationalized as a practical consequence of the job, but an actual outcome is that children,

even more than the old, are rarities in the *Star Trek* universe. In the TV series, a more representative age range was provided on occasion by the inhabitants of the planets visited, but they tended of necessity to represent problems in need of solution by the *Enterprise*. "Miri", the episode which led to the BBC banning four episodes (admittedly an extreme example), depicted a planet inhabited solely by children and a virus which causes the crew to age rapidly.

Being human in *Star Trek* seemed to mean being middle class, prime of life and unattached. Ideally it also meant being white, male and American. Being female or non-Caucasian was acceptable, as long as it remained rare, and, except in the case of the one person who was both, singular.

With *Star Trek: The Next Generation* the attempt to be a more thorough-going 80's product was effected mainly through adjusting cast demographics. Women and people without American accents have much greater prominence and there are more crew members of various races. The captain for instance has a (standard received) English accent and a French name; the doctor, the chief engineer and the ship's (Russian) security officer are all female; and the doctor's young teenage son also travels aboard the *Enterprise*. This boy and the Ship's Counsellor, a middle-aged woman, help enlarge the regular age range. The tokenism now so evident in the early series and the films, seems not to be as obvious, in part because the crew is so much larger. Being female and perhaps to a lesser extent being black (though this time not being both) are no longer exceptional cases of the 'normal' way of being human. They represent instead standard, though unimportant, variations, so women and blacks do not need to demonstrate that they are part of the norm - 'really' American - and the difference truly superficial. Perhaps the liberal humanism which underlay the tokenism and which was generally attributed to the Producer Gene Roddenberry, (Executive Producer for the new series), may continue to be discerned in the inclusion of a disabled black crew member - a blind man who wears a seeing device. The meaningful exception is still carried by a black person.

The 60's TV series of *Star Trek* presented a particularly non-threatening future with no hint of problems on Earth, no interference with Kirk's authority from his superiors and the threat from the Klingons and other assorted aliens no more than could be contained within the week's episode. This changed somewhat in the films, but even so it is reasonable for Marc Mancini, examining changes in the general portrayal of the future, to have written

"*Star Trek*, certain Japanese and Soviet movies

> and a few Saturday morning kidvids are the only remaining bastions of a progressive harmonious tomorrow."[40]

The twenty-third century society represented by *Star Trek* is one marked by the absences of much that can be seen to create contemporary problems. It lacks families, the old and children; the working class are few and silent, non-Americans and non-whites are few and not often in positions of power; there are no individual nations; overpopulation, nuclear power and possibly even the mass media, have disappeared. Conflict is provided by the threat of war with aliens (though not all aliens are enemies) and excitement by space exploration. It is indeed the very moment of American hegemony, with patrolling the world projected into the future and onto the galaxy. The difference from the more common representations of the future produced in the 80s, where contemporary problems are not absent but redoubled, could hardly be more marked.

Star Trek does present a different vision of the future from that provided by other fictions, particularly others that share the space setting. It is not merely that it is an exception to the dominance of economic discourse, though this is very significant. As well as the minimal role economics played, even in the affairs of villians, the difficulty both *Star Trek* and the American polity itself have in naming their own actions imperialist, was noted. The replacement of economic discourse, not by the scientific, but by a moral-ideological discourse is the prime way in which *Star Trek* is a distinctive vision of the future. In keeping silent on economic matters while emphasising humanist and the peace-keeping activities the *Star Trek* fictions could be seen as prime SF embodiments of neo-imperialism. Yet not necessarily in contradiction to this, they are most different from their fellow fictions in their optimism, derived absolutely from their 60's origin.

The constraints of the past have bitten, and *Star Trek* presents a distinctive nostalgic future, yet it is neither a thoroughgoing return to the 60s, nor the deco-pastiche of Jameson's postmodern nostalgia films. The continuity presented by the recurrent rescreenings of the original episodes, the availability of so great a range of secondary material and the activities of the fan audience, including their demands for consistency and fidelity, all act

[40]Marc Mancini: "The Future Isn't What it Used to Be", *Film Comment*, 21(3), May-June 1985, pp11-15. p15

to ensure that 'pastness' is not merely in the 'look' of the films and the structures of feeling they attempt to evoke. It is also in the clarity with which the fictions are able to maintain the depiction of the harmonious expansion of the American way into a stable, comprehensible, optimistic future where economic matters did not have to be (overtly) taken into consideration. It now seems to have been so much simpler in the 60s, and in the *Star Trek* universe, it can seem to be simpler again.

CHAPTER SIX: BEING HUMAN BEING ARTIFICIAL

In all the previous chapters, scientific discourse, in Foucault's terms the discourse in which 'truth' is most centred, has been seen to be unable to operate easily in talking the future without interacting with fiction. Furthermore, the last two chapters have shown other discourses - the economic and the moral-ideological - challenging the dominance of scientific discourse. They have themselves presented alternative ways of talking about the future, for *Star Trek*, constrained by its genesis in the 60s, presents an optimistic view of the future, while space fictions are not so constrained and present a much less happy view. This latter is more in keeping with the general tone in which the future has been seen to be talked about so far.

The present chapter brings to prominence what was a minor concern of the previous one - the meaning of being human. Few questions have been more central to SF than those concerned with this. It has been most frequently explored through stories of encounters with aliens, but it also quite often features in interactions between people, computers and robots. Developments in fields such as computer science, robotics, bioengineering and reproductive technology are beginning to shift the issue out of the solely science fictional and into the scientific. It thus offers a further site for examining the interaction between these discourses, and one where the transition is in process rather than substantially completed, as was the case for space. The present chapter will consider how a future in which humanity and artificial beings co-exist is talked about and which discourse or discourses seem to be dominant here.

Artificial beings offer a challenge to humans scientifically - in their development - and in other ways, especially ethically and politically, as we need to imagine how we would deploy, control and relate to such phenomena. Much of this imagining is done in fiction. Vivian Sobchack, in noting the challenge in recent American SF film, has referred to Walter Benjamin's famous essay, "The Work of Art in the Age of Mechanical Reproduction". In this, Benjamin examined the challenge to the unique status of the work of art posed by the technologies of reproduction as they existed in the mid 30s. He saw a decline in the 'aura' of the original following the rise of the copy and the art of film. Concomittant with this, there was a decline in the relevance of the magical, mystical and religious.[1] Sobchack notes that now,

> "In an age of electronic reproduction and replication, however, it is the unique status of the human being that is challenged by technological transformation."[2]

The challenge is not as yet of the same order as that Benjamin examined and it may well be that it is offered first by biotechnologies rather than electronics. Nonetheless, the challenge whether from electronic or biological technologies can be detected strikingly in many SF films' preoccupation with various kinds of artificial humans and intelligent computers. Science programmes and documentaries deal more mundanely with the related developments and possibilities.

It is both the uniqueness and the superiority of human beings that is being challenged. A stronger, faster robot which is also more intelligent is certainly a threatening figure, but genetic engineering may offer a thoroughly superior being who is also human, representing perhaps the next step on the (artificially accelerated) evolutionary scale. Interestingly, this threat of being 'evolved-past' does not figure directly in even the most fantastic of the mass market films and TV programmes,[3] where the superior human seems always to be revealed as artificial or alien (and consequently not really a superior **human** after all).

Before examining this in any detail, it is necessary to outline the terminological distinctions that will be used. The greatest problems come from the terms used for beings which do not (yet) exist. The 'yet' is important. The beings considered under the general term 'artificial' are ones that are based, however loosely, on a scientific premise. They do not yet exist, but they could; they are not in any literal sense, supernatural.

The term 'robot' in SF, generally refers to objects more advanced than any yet operating. They are usually intelligent, though this is not invariable. In

---

[1] Walter Benjamin:"The Work of Art in the Age of Mechanical Reproduction" (1936) in *Illuminations*, London, Jonathon Cape, 1970.

[2] Sobchack: *Screening Space*, p 237

[3] An apparent exception to this is Khan, the 'genetic superman' in *Star Trek II: The Wrath of Khan*. As I explained in the previous chapter, he is described as a remnant of the Eugenics Wars of the late twentieth century, but his superior strength and intelligence are vitiated by his inferior moral sense. His characteristics furthermore are constrained by his having first been described in a TV episode in the late 60s, before developments in genetic engineering made him the (slightly) more credible being he appears in the recent film. The Wars however, even in the TV series, curtailed such genetic experimentation.

about half of the cases they are humanoid in shape, but there is rarely any difficulty in knowing that they are non-biological. For example, the rivets are usually visible. Robots were the first kind of artificial beings to be depicted in films; Denis Gifford cites Méliès' *The Clown and the Automaton* (1897), a film that has failed to survive, as the first, and identifies Arthur Cooper's *The Motor Valet* (1906) as depicting the first robot to run riot.[4] Neither of these creatures could actually be called a robot, since the term was not coined by Karel Capek until 1917 and not in public use until after the success of his 1920 play *R.U.R.*.

In 1985, Philip Strick coined the term 'mandroid' to refer to artificial people who lack souls and turn against their creators. He identifies the first of these beings in film as in Méliès' *Coppelia* (1900).[5] The classic example is, of course, Mary Shelley's; the first screen appearance of her monster was in Searle Dawley's *Frankenstein* (1910). Strick's term itself has no currency in films and TV programmes. The concept however is important. While the moral evaluation of artificial humans is ambiguous - they may be good, bad or a combination of both - it seems to remain a requisite that a thoroughly artificial person will turn against her or his creators. There are very few exceptions, (Bishop in *Aliens* is one). When it becomes reasonably uncommon for this revolt to occur, as it now is with robots, it is a sign that the being concerned, while still artificial, is no longer considered an artificial **person**.

Intelligent computers are a problem here, perhaps because of their appearance. If they appear humanoid or even if they have independent mobility, then they are not referred to as computers, but as robots; otherwise they are usually depicted as too massive and box-like to be artificial people. While probably the majority no longer turn against their creators, or against 'real' people in general, computers with a substantial role in the plot are still more likely to do so, than not. It is difficult to be precise about this, in part because it is much less common a plot device than it once was.

As far as the fictional material is concerned, the term 'artificial intelligence', although notable in literary works, is usually absent. The extent to which computers depicted in various SF films and TV programmes are endowed with artificial intelligence is generally far from clear - HAL in *2001: A Space Odyssey* kills because he has been faultily programmed, but in *2010* where he has retrospectively been given artificial intelligence, he has to

---

[4]Denis Gifford : *Science Fiction Film*, London, Studio Vista/Dutton Paperback, 1971. p51

[5]Philip Strick: "Future Movies: Reading the Signs (Part 1): A Passion for Mandroids", *Films and Filming*, No.366, March 1985, pp7-10. p8

be persuaded to sacrifice himself. Proteus in *Demon Seed* (1977) is described as having artificial intelligence but this is linked to his having organic components. Future computers are frequently given greater powers than any actual ones yet have, but where they come from or on what they are based is rarely specified - particularly in the more recent films.

When the beings are humanoid and largely biological, the usual terms are 'android' and 'cyborg'. Androids are the classic artificial humans. They look like people, but they are manufactured. When reference is made to their creation, the sciences concerned are biological and chemical. Advances in biotechnology and genetics have made it possible for these references to be more precise and apparently 'scientific'. The term 'replicant' is also relevant. It was created especially for *Blade Runner* as an alternative to 'android' which had figured in the director's previous film, *Alien* (1979). The term has not been adopted by others, though the prominence of the film in critical discussion means that the term is widely recognized. In no way can replicants be differentiated generically from androids - they are similarly artificial, superficially indistinguishable from humans, created as adults by 'real' humans to provide a biddable labour force. Perhaps replicants are more difficult to differentiate from humans than most androids, but this is only a matter of degree - the ability to 'pass' is characteristic.

Cyborgs, unlike androids, usually cannot pass for human, despite their distinguishing characteristic being that they are part human. 'Cyborg' is a portmanteau word, combining '**cyb**ernetic' and '**org**anism' - the former providing both the reference to control and the analogies between artificial and biological sytems and the latter stressing the biological. The term was coined by Manfred E. Clynes and Nathan S. Kline in 1960 to refer to 'self-regulating man-machine systems' designed specifically for space-flight. The first recorded use is in a report in *The New York Times* of a projected aviation medicine conference paper of theirs, which provides the following definition

> "A cyborg is essentially a man-machine system in which the control mechanisms of the human portion are modified externally by drugs or regulatory devices so that the being can live in an environment different from the normal one."[6]

Their approach to the problems of astronauts on extended space missions was the reverse of others at that time and since, in that they were proposing to

6 --- "Spaceman is Seen as Man-Machine", *New York Times*, 22 May1960, p31

adapt the astronaut to the changed environment rather than the reverse. This is the classic anthropological distinction between the autoplastic (where the body is manipulated, through, for example, surgical rites of passage, to achieve a desired relationship with the environment) and the alloplastic (where the environment is modified by technical means).[7] The assumption that the alloplastic is the more 'developed' response accords well with the subsequent history of manned space flight. The article, which mentioned as a final aside the possibility of using the cyborg concept as "a valuable tool of research into mental and other diseases", included a paragraph with the familiar disclaimer.

> "Both scientists emphasised [. . .] that while their ideas sounded like science fiction, many could now be implemented with existing drugs and apparatus."[8]

In their actual paper they gave a slightly more formal explanation of their proposed man-machine system, explaining that the

> "self-regulation must function without the benefit of consciousness in order to cooperate with the body's own autonomous homeostatic controls. For the exogenously extended organizational complex functioning as an integrated homeostatic system unconsciously, we propose the term 'Cyborg'. The Cyborg deliberately incorporates exogenous components extending the self-regulatory control function of the organism in order to adapt it to new environments."[9]

Subsequent references to cyborgs have overwhelmingly been within an overtly fictional context and have minimised if not eliminated references to the use of drugs. The cyborg does not appear any longer to be primarily envisaged as an astronaut.

Current usage in SF and related areas tends to be derived from Clynes

---

[7] Géza Róheim: *Australian Totemism*, London, Allen and Unwin, 1925, restated in Mary Douglas: *Purity and Danger*, London, Routledge and Kegan Paul, 1969. p116.

[8] "Spaceman is Seen as Man-Machine", p31

[9] Manfred E. Clynes and Nathan S. Kline: "Cyborgs and space", *Astronautics*, September, 1960, p27.

and Kline, with the main variations those just noted. Complications have been introduced recently with the use of the term 'cyborg' in critical theory, where it usually involves reference to the feminist critic Donna Haraway's provocative article "A Manifesto for Cyborgs". Several recent studies have quoted her definition

> "A cyborg is a cybernetic organism, a hybrid of machine and organism, a creature of social reality as well as a creature of fiction",[10]

without noting that **her** usage differs markedly from the use in contexts other than critical theory. As she says in her next paragraph, she is

> "making an argument for the cyborg as a fiction mapping our social and bodily reality and as an imaginative resource suggesting some very fruitful couplings."[11]

She continues,

> "[t]he cyborg is resolutely committed to partiality, irony, intimacy and perversity. It is oppositional, utopian, and completely without innocence."[12]

From this it is clear that she is using the figure of the cyborg as a metaphor through which feminists can strive to overcome the belief that science is ineluctably masculine and inextricably implicated with exterminism. she does this by insisting that people are already unable to maintain barriers between human and animal, animal and machine, physical and non-physical. People are already 'compromised' [not her term] and should be exploiting the advantages of it. Her argument and, her initial definition are both accepted here, but directly equating her "oppositional" figure of the cyborg with the beings depicted in recent films and TV programmes creates substantial problems. Her figure will be retained "as an imaginative resource" of great value, but has no direct analytic application to my argument.

While usage of 'android' is relatively unproblematic here (other terms may be used but the collection of characteristics remains relatively constant),

---

[10]Donna Haraway: "A Manifesto for Cyborgs", *Socialist Review*, Vol. 80, 1985, pp65-107. p65

[11]Ibid., p66

[12]Ibid., p67

'cyborg' is more difficult, even on a pragmatic level. The main difficulty is apparent disagreement over aspects of the definition, in particular the extent to which a cyborg is a machine. There are beings termed cyborgs which do not abide by Clynes and Kline's definition: in film there is *The* (eponymous) *Terminator* (1984), and there are various televisual beings linked at the very least homophonically - the 'cybernauts' in *The Avengers*, the 'cylons' in *Battlestar Galactica* and the 'cybermen' in *Doctor Who*. It is important to stress that all of the TV examples are now quite old. *The Terminator* is however a particularly interesting example, especially as it post-dates a possible decline in the term's usage. The terminator is explicitly described as a cyborg, but is also counterposed to the humans by being a machine-created machine. Its basically mechanical status is confirmed by its final manifestation, totally stripped of its fleshly covering, metallically pursuing the heroine. Perhaps it is the decline in consensual usage that makes it possible to call a flesh covered robot a cyborg.[13]

There has never been any precision about the relative proportions of human and machine in a cyborg, although the expectation that cyborgs appear physically distinguishable from full humans tends to mean that the machine predominated externally. The 'classic' cyborg of fiction, if we can use such a term, looked like a humanoid robot, was usually all black, lacked facial features and was absolutely emotionless. The cybermen and the servos of *Blake's 7* are good examples. When, in the late 70s, TV programmes about mechanically augmented humans (particularly *The $6 Million Man* and *The Bionic Woman*) became popular, it was never suggested that they were cyborgs; because they looked like humans and were not androids, they had to be humans. By this time the only beings termed cyborgs were recognizably other than human. If cyborgs were merely defined as part human, part machine, then far too many living people had achieved cyborg status; artificial components such as replacement joints might be regarded as little more than developments from wooden legs, but heart pacemakers were specifically cybernetic in having as their basic function regulating, indeed governing. A person with plastic hipjoints, a pacemaker, perhaps several metres of man-made arteries, implanted plastic lenses as the result of a cataract operation

[13]Perhaps such imprecision is spreading - "Kryten", an episode of *Red Dwarf* (tx. 6 September 1988), featured a humanoid robot referred to throughout as an android. He became a regular in the third series. Kryten is rather like Marvin: the Paranoid Android in *The Hitch-Hikers' Guide to the Galaxy*. A robot even less humanoid than Kryten, Marvin is probably described as an android simply because the assonance appealed.

and, to construct an extreme example, an artificial arm operated by myo-electric currents would certainly fit Clynes and Kline's description of a cyborg. She or he was not, however, called this. If they were to have been, then the term would have lost its SF connotations, which by this time were all it had. There was nothing at all unprecedented in a word moving from SF to scientific fact; it had already happened to 'robot'. 'Cyborg', however had had universally negative connotations - the principal plot function of cyborgs was to attempt to kill the heroes. Perhaps even more tellingly (for robots too had had an equivocal fictional history before their actual commercial deployment), they had been depicted as immensely strong, hyper-efficient and hyper-rational beings, while the 'real-life' people with potentially cyborg features were generally the old and the sick. The term seemed to lapse. The hero in *Robocop*, a classic cyborg in all but the moral evaluation of him,[14] is never referred to as such in the film - he is a robot who just happens to have been grafted on to the remains of a human police officer. Nonetheless, critics writing about the film referred to him as a cyborg in outlets as diverse as *Village Voice, The Daily Telegraph* and *New Musical Express*, although this nomenclature was by no means universal. *Robocop* serves to indicate that the hybrid human-machine is now morally ambiguous.

In what follows, as much as is possible, the older sense of 'cyborg', folowing Clynes and Kline will be used - a being part 'ordinary' human, part machine with the latter more noticable. It is important that a cyborg is a single integrated being exhibiting these characteristics. For example, Max Headroom is not regarded here as a cyborg; his human part continues a separate existence from the cybernetic system. Similarly, children born following even the most substantial mechanical interventions of reproductive technology are not cyborgs either, since they have shed the machine. The extensive quotation earlier from Clynes and Kline's paper supports this insistence on the incorporation of the exogenous components.

The distinctions just drawn have developed in the period since 1897 as some aspects of the fictional posited beings became actually achievable. This section will map the changes in the depiction of artificial beings by examining some of the classic film precursors to contemporary fictional artificial humans and intelligent machines. As just indicated, there have been robots and

[14]The pronouns used in reference to identifiable artificial beings will be those attributed within each specific film or television programme, either directly or, as is sometimes the case with computers, by implication through a gender specific voice or name. Remarkably few beings are ungendered.

androids on film almost as long as there have been films, but the earliest examples cannot be regarded as very significant. Despite her role as the first android, Coppelia has not been influential. The figures that have been most important have been Frankenstein's monster, Maria in *Metropolis* (1926), and to a lesser extent, Gort in *The Day the Earth Stood Still* (1951) and Robby the Robot in *Forbidden Planet* (1956).

Although Frankenstein's creation of dead flesh animated by electricity could be the classic android, or even in Strick's term 'mandroid', this is not really quite the case. His usefulness for subsequent films lies in the way in which he establishes a boundary between SF and horror. This is revealed in his name, or rather, namelessness; he is a monster and foreshadows Godzilla and numerous zombies as much as, if not more than, he does the replicants of *Blade Runner* or the androids of *Alien(s)*. When the monster turns against his creator in Mary Shelley's novel it is not merely because he lacks a soul but because Frankenstein will neither love him nor create someone who will. The films are rarely this explicit; the monster usually just seems inevitably evil, destructive and sexually jealous of his creator. The most influential of the films is John Whale's *Frankenstein* (1931) which is not very faithful to Mary Shelley. The film's explanation for the monster's blood lust is given as his having received a brain from a criminal. The difficulties seem to lie in Frankenstein's use of corpses for the raw material of his creature. In subsequent films, whether or not they feature Frankenstein or his monster, reference to any such source seems to serve as a generic marker to a horror film and the being created is regarded as supernatural (a zombie or a monster) rather than having a (pseudo-) scientific basis. That Frankenstein is generally depicted as working in a laboratory is irrelevant here. Although the Frankenstein films omit Shelley's references to her doctor's researches in necromantic texts, it would appear that the corpse carries the signs of it.

To establish the scientific character of SF, the flesh from which androids are constructed must be fully and newly created - the scene in *Blade Runner* where replicant eyes are being constructed is exemplary here. That used as the basis for cyborgs must be still living, or at least in that state where an audience accustomed to the ambiguities surrounding the status of donor organs for transplants does not regard it as dead flesh. Imprecision used to be acceptable, especially when cyborgs were just the agents of totally human villians (like Servalan's servos in *Blake's 7*). For contemporary leading characters, clarity would appear to be required. In *Robocop*, the mortally wounded policeman's body goes through the resuscitation procedures and

brain scans familiar to any watcher of medical documentaries, before becoming incorporated with its mechanical and electronic components into the law enforcement unit. This seems a useful point at which to note Bill Nichols' argument that the dependence on 'vital signs' in artificial life-support systems testifies to the power of cybernetic simulation itself, since it is on the basis of the simulation that decisions about the presence of life are taken.[15] So accustomed have we become to this phenomenon (which Haraway would certainly take as an instance of our having already become cyborgs) that it can be used to anchor the speculative/impossible creation of the robocop as realistic, through the familiarity of the world of hi-tech medicine.

The combination of science and the supernatural, which in the case of the Frankenstein films is weighted to the supernatural and eventually comes to be fully supernatural, tips the other way in *Metropolis*. Rotwang's creature is made of metal and disguised in the shape of the heroine Maria by some pseudo-scientific electrical transference procedures carried out on the **living** body of the real woman. The electric arcs, which are the indicators of this, were to become the standard signifying device for the artificial engendering of life thereafter. As well as this, other influential devices were the appearance, articulation and the portentous slow initial walk towards the camera (shot from quite a low angle), of the robot figure. This one being was significant for different kinds of artificial human not merely for robots. The hybrid creation she became set the pattern for the behaviour and plot function of androids and cyborgs (not at this time differentiated).

Something of her apparent monumentality has been retained for robots and computers where it denotes the power and presence of the mechanical. The escape from the creator's intentions, the hedonism and destructiveness of the unleashed robot-cum-android-cum-cyborg (for as a robot clothed with flesh she is the same as the terminator) would all prove irresistible tropes, though they did not originate with Lang. Much earlier, automata had gone mad and genies called up had proved uncontrollable. The absoluteness of the moral distinction between the human (the saintly 'real' Maria) and the artificial (the destructive false Maria) has declined, but remained the dominant position until the late 70s.

Peter Wollen has emphasised the link between excess sexuality and uncontrolled technology exemplified by the figure of the false Maria. She must be defeated by the true Maria for "productivity and social harmony" to be

[15]Bill Nichols: "The Work of Culture", p37

restored and for technology to operate rationally.[16] Inasmuch as an active sexuality is manifested in contemporary films by machines (*Saturn 3* (1980), *Demon Seed*), it must still be neutralized and with much the same message. Such sexuality is now, however, male. In the 70's films, technology was used to render female sexuality non-threatening, most notably in *The Stepford Wives* (1975). The sexuality of androids is more complex, especially, as shall be demonstrated later, in the 80s. The extent to which the false Maria still provides an influential precursor is complicated by the split of the mechanical and the organic. Although her behaviour remains a shadow behind contemporary artificial humans, she is more substantially an influence on the appearance of the mechanical.

Gort was the robot companion of an alien. Smooth and featureless, his appearance would be echoed later not by robots but by cyborgs, as would his obedience to his master or his commands. Like the alien, Gort was benign though capable of destructiveness. Robbie the Robot influenced both the appearance and the behaviour of robots to come; vaguely humanoid but decorated with many flashing lights, he was a childlike companion capable of generating humour through his literal interpretation of commands. He served, as did his look-alike in the US TV series *Lost in Space*, to promulgate the view of robots as tools, liable not to run amok, but to be imprecisely programmed by their human operators. Larger than their most frequent companions, they drew on beliefs about 'gentle giants' and often saved humans by deploying their superior strength. These were good beings, but not independent thinkers or actors.

Since these early manifestations, there have been a number of changes that lessen the apparent distance between the depiction and the currently possible. Many of the more recent films featuring artificial beings embed the android, or more especially the cyborg, in situations designed to be futuristic rather than definitely SF. The posited futures obey the rules of minimal variation; the artificial being is the prime and sometimes the only novum, all other differences from the present are through small extrapolations. *Robocop* is a prime example, it asserts a definite date (the rather close 1999) and provides information about the changed situation by the incorporation of segments of future television programmes. Few recent films project futures much in advance of the present, though thirty or so years from the time of creation (*Blade Runner* is set in 2019, *Android* in 2028) is more common

[16]Peter Wollen: "Cinema/Americanism/The Robot", *New Formations*, No. 8, Summer 1989, pp7-34. pp17-19

than *Robocop's* twelve.

Thus there has been a clarification of the boundaries between different types of artificial beings related, but not limited, to something of a clarification of the boundaries between SF and horror. Androids, cyborgs and robots have been distinguished from monsters and zombies. Developments in the fields of robotics, artificial intelligence and genetic engineering have rendered unnecessary the inclusion of alchemical or alien references that *Frankenstein*, *Metropolis* and *The Day the Earth Stood Still* required. Alien robots and androids still exist in fictions, but there are alternatives; alchemical allusions now serve only as generic markers of horror or fantasy.

As well as being consequent on changes in what is scientifically feasible, the changes and clarifications that have just been identified involve shifts in the relationships between elements of the machine and of the human. The structure of these relationships (within which depiction of intelligent machines and artificial humans functions) can fruitfully be explored through the use of a semiotic square. The semiotic square was developed by A.J.Greimas as a device to map out the possible relationships between units of meaning. It goes beyond a simple binary opposition to posit "a double relation of disjunction and conjunction".[17] The existence of a particular unit of meaning, S1, presupposes not merely its contrary, S2, but also the absences of both terms, referred to as $\overline{S1}$ and $\overline{S2}$. The relationships between these four form the square. In his Introduction to Greimas' *Structural Semantics*, Ronald Schleifer explains that the relationship between the first pair (and also the last pair) is contrary or equipollent; the relationship between the terms and their absences is contradictory or privative; and that within the two remaining pairs (S1 and $\overline{S2}$ and S2 and $\overline{S1}$) arbitrary or gradual, since they often appear to be on a continuum where the opposition is cultural rather than logical.[18] Although Greimas intended his square to exhaust all possible meanings and generally be transhistoric, it has been used by Fredric Jameson for a slightly different purpose. He uses it in conjunction with Levi-Strauss' formalization of the structure of myth to overcome the static nature of the model and allow an analysis of narrative transformation and historical change.[19] Since the

[17] A.J.Greimas and F. Rastier: "The Interaction of Semiotic Constraints", *Yale French Studies*, No 41, 1968, pp86 - 105. p88.

[18] Ronald Schleifer: "Introduction" to A.J. Greimas: *Structural Semantics*: *An Attempt at a Method*, Lincoln and London, University of Nebraska Press, 1983. pxxxiii

[19] Fredric Jameson: "The Vanishing Mediator: Narrative Structure in Max Weber", *Working Papers in Cultural Studies*, 5, Spring 1974, pp111-149. p127

square presents information synchronically, it does not initially allow transformations over time to be examined. Jameson, however, rejects the static nature of the square (indeed he even rejects the shape, referring to it as a rectangle), arguing instead that its use lies in what it reveals about ideological closure. It is within such ideologically closed fields that transformations occurs. In his appropriation, the semiotic 'rectangle'

> "becomes a vital instrument for exploring the semantic and ideological intricacies of the text [. . .] because it maps the limits of a specific ideological consciousness and marks the conceptual points beyond which that consciousness cannot go and between which it is condemned to oscillate."[20]

The use that follows here is quite explicitly diachronic, examining movement between the elements of the squares constructed to describe fictions produced at different times.

The initial contrary units (S1 and S2) are 'human' and 'machine'. As is standard in the initial stage of constructing a square, the second pair of contrary units ($\overline{S1}$ and $\overline{S2}$) are designated 'non-human' and 'non-machine'. The category $\overline{S1}$ (non-human) can be specified as that in which artificial humans are located, since this is Greimas' positive complex term being simultaneously S1 and S2. $\overline{S2}$, the non-machine category, is more problematic. This, the negative complex term, neither S1 nor S2, is frequently unspecifiable; the difficulty is not peculiar to this example. Not only does Jameson focus on it for much of his productive work, but Greimas himself mentions its particularity in the very final section of *Structural Semantics* (XIII.5.e.). Neither Greimas nor Jameson suggest a definite protocol for specifying this term, but I would like to suggest that perhaps the category 'non-machine' can be concretized as 'animal'. This will later be shown to be quite productive.[21] The aim of identifying the term is to actualize the ideological

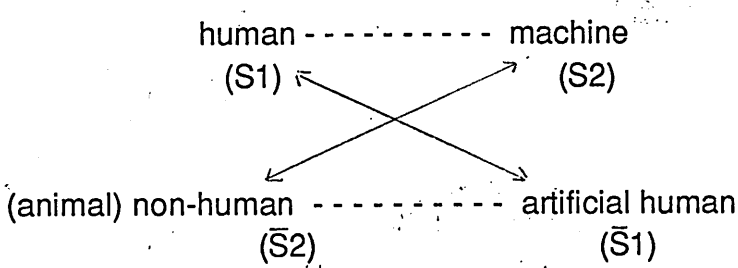
[20] Jameson; *Political Unconscious*, p 47

[21] Since developing the square and identifying the fourth term as 'animal', I have read James H. Kavanagh's essay "Feminism, Humanism and Science in *Alien*", in which he develops a similar model from the different opposing dyad: human-alien. Not only does he place an artifical human in the same $\overline{S1}$ position, but he too identifies $\overline{S2}$ as animal. While very interested in the degree of overlap between the two squares, I do not feel that the identification of the artificial being as both alien and human is defensible outside the particular specialised field (the analysis of *Alien*) where Kavanagh deploys it. Even there I

closure, while the difficulty of doing so points to Jameson's belief that semiotic rectangles can be used to reveal

> "those logical and ideological centres a particular historical text [though in my case a series of texts] fails to realize, or on the contrary seeks desperately to repress."[22]

The semiotic square developed from the opposition between human and machine then, is as follows:



As mentioned earlier, Greimas described the vertical relationships as gradual and based on an opposition that was cultural, rather than logical. This is the case for machines and artificial humans. The identification of the $\bar{S}2$ term as 'animal' accords with this requirement too.

The $\bar{S}1$ term has been very intentionally left just as 'artificial human' because it is the various identifications of this in the fictions, concurrent with developing scientific knowledge in areas like cybernetics, electronics, artificial intelligence and bioengineering, that are particularly illuminating in terms of what it means to be human (or not). As the next section will show, as the extent to which fictional beings become scientifically credible increases (and usually considerably before they become fully possible), they no longer happily occupy this space. An examination of the narratives over time will reveal what happens - the artificial human category is best understood as requiring strong fictionality.

The first examples will be two influential ones from before the research

find it problematic, since I cannot perceive a continuum between the alien and Ash (the android, wrongly identified by Kavanagh as a robot). James H. Kavanagh: "Feminism, Humanism and Science in *Alien*", in Annette Kuhn (ed.): *Alien Zone*, p79

[22]Jameson: *Political Unconscious*, p 49

period. In *Metropolis* the false Maria is, as was pointed out above, a compound of robot, android and cyborg, categories that were not then all that separate, the robot part did involve a scientific premise, but otherwise she was a creature totally of fiction. She is undoubtedly an artificial human. Robbie the Robot from *Forbidden Planet* on the other hand, is not a happy occupant of the artificial human category. He is far too explicitly a machine to occupy the $\overline{S}1$ corner. Robotics and computing had both advanced in the thirty years between the two films and vaguely humanoid, programmable robots were starting to sound more scientific than science fictional.

Actually within my research period, the late 60s and early-to-mid 70s provide intelligent computers and semi-intelligent robots as further uneasy occupants of the $\overline{S}1$ corner, though the Gunslinger in *Westworld* (1973) and the various wives in *The Stepford Wives* may have at the time been reasonable occupants of the artificial human category on the basis of their convincing appearance and movement.

The most definite occupant of the artificial human place to occur since the false Maria, is the child born at the very end of *Demon Seed* to Julie Christie and the intelligent computer, Proteus. Much more than is the case for HAL in *2001*, Proteus himself is potentially a candidate too, being independently intelligent and self-reproducing. He is not presented as an artificial human, however, and his case makes clear the point made at the beginning, that in all these fictions a decidedly human appearance seems required and only his child has this. On television the shift noted earlier from the fictional cyborgs in *The Avengers*, for example, to the unidentified-as-cyborgs bionic people had occurred concurrently with advances in medical technology.

The move of cyborgs, intelligent computers and human-appearing robots closer to scientific actuality (and in the case of cyborgs substantially so), left the artificial human category occupied, as it still is, almost entirely by androids - like Ash from *Alien* and the replicants from *Blade Runner*. Indeed apparent exceptions, like the terminator, robocop and Friendship from *Friendship's Death* (1987) are in fact posited to be something else - a flesh covered machine, a cyborg and an alien robot, respectively.

The modulations in the semiotic square then can be seen as driven by the interactions of fiction and scientific knowledge. What happens however to the beings displaced because they have become more scientifically credible? The question can be answered most clearly by the case of the cyborg, the being that has been argued to have escaped from the fictional into full, if

unacknowledged, actuality. The cyborg is a hybrid of human and machine and serves in the role of mediator between the two initial opposites, precisely as Jameson's suggested use of the anthropological figure of the trickster does.[23] As Coyote, the trickster, mediates between herbivorous animals and beasts of prey, because he is himself a carrion eater and so serves to resolve the opposition,[24] so cyborgs should do for humans and machines. Perhaps in fact this is what the robocop manages. In the 'real world', the refusal to acknowledge the cyborg status of people with artificial components makes this role difficult. Tricksters, Levi-Strauss assures us, are traditionally ambiguous figures and so has the cyborg become. The simple portryal of cyborgs as always bad has gone and now, when they are shown, they may be either good or bad.

The same applies to intelligent computers. The place of these is a little more difficult since they do not yet exist, but they too seem mediating figures, perhaps on the same axis as the cyborgs though tending more to the machine. Levi-Strauss' formulation allows for several orders of mediator. Alternatively, they may be located on the right hand vertical axis between machines and artificial humans. Certainly this is where Proteus seems most suited.

This evacuation of the $\overline{S1}$ corner of all but the substantially fictional is the first significant indication here of the effects of the different statuses of discourses able to make truth claims. When scientific discourses become applicable to an artificial being, it must be removed from the artificial human category and moved towards either of the two initial oppositions. Robots and intelligent computers become machines and cyborgs become humans. Artificial humans can only be spoken of in discourses without the power to make truth claims. The science shown at work in the fictions where androids are created must be designated 'pseudo' - thus the scientist making replicant eyes in *Blade Runner* works in furs, and Dr Daniel, played by Klaus Kinski in *Android*, is obviously mad.

So, looking at changes in the portrayal of artificial beings over time has shown the interaction between fictional and scientific discourses operating in a different way from the way it has previously. Here it is an aspect of the fiction that requires 'purity'. Artificial humans cannot be too (scientifically) credible or they become recognised as machines or humans. Changes in 'real world'

[23] Fredric Jameson: *The Prison-house of Language*, Princeton University Press,1972. p165

[24] Claude Lévi-Strauss: *Structural Anthropology*, Vol.1, (trans. by Claire Jacobson and Brooke Grundfest Schoepf), London, Allen Lane the Penguin Press; 1968. p224

science alter their status and identity within the fictions.

The suggestion that the fourth term of the semiotic square might be 'animal' is most productive when the human - - animal continuum is considered. While the distinction is indeed cultural (and the continuum could simply be labelled 'animal' or even 'zoological'), it is a distinction most emphatically insisted upon in many if not most cultures and certainly in 'advanced' ones. In most Western religions, animals do not have souls (nor do machines and, it seems not unreasonable to assume, nor would artificial humans) and their labour is at the disposal of their owners (again like machines and putatively like artificial humans). The traditional characteristics distinguishing humans from animals - the use of tools, the possession of a language and the ability to laugh - have all recently had their solely human identity challenged by scientific research. The use of tools, the possession of a language and a sense of humour are all important markers, and in that order, along the machine - - artificial human continuum too. Very few androids or cyborgs smile, let alone laugh, and doing so is a highly significant act.

The shifting of beings out of the artificial human category fulfils an important function in the exploration of what it means to be human. As beings approach possibility, they become either machines or humans and thus the challenge that is offered to humanity by the artificial, is never other than fictional. Within fictional discourse, however, the challenge, and particularly its ethical and political aspects, can continue to be explored. Perhaps something of what it means to be human can be determined from looking for characteristics shared by the terms of the semiotic square other than the human. For example, are animals and the entire machine - - artificial human continuum united in that they can be owned and their labour disposed of without recompense? Animals and machines would certainly appear to be so, but for artificial humans their inclusion in this is frequently questioned, overtly or not.

This particular distinction is most informative. Although it may rarely be discussed, slavery is an issue in the fictional treatment of artificial humans. The machine-like quality of androids and cyborgs, their soullessness and their ability to be owned make them 'ideal' slaves, yet their humanity is such that this can neither be unequivocal nor directly addressed. One way in which it does arise is through 'rebellion', a term which can be usefully counterposed to

'resistance' and 'revolution'. Rebellion occurs frequently in SF dealing with artificial humans, where it is usually the 'turning against their creators' mentioned at the start of the chapter, but outside SF, it has meaning principally in relation to slaves, the colonized and children. The last term resonates interestingly against the two previous ones and provides another way to consider the depiction particularly of robots. It will be taken up later. For the moment it is illuminating, and not just in this regard, to consider the discourse within which artificial humans are embedded as analogous to a colonial one. Colonial (and postcolonial) cultures are characteristically hybridized, as a consequence of the precolonial and imperial mix. This, even more than the matter of labour, is the basis of the applicability of some aspects of colonial discourse to the fictions concerning artificial beings. Whether they are the mediating hybrids of the machine and the human, like the cyborg, or the more complex, heavily fictional hybrids, the artificial humans, makes little difference until they are fully realizable. In what follows, 'artificial human' will continue to refer to androids and the fictional cyborgs.

Considerations of colonial discourses stress how they deny difference to their subject peoples, homogenizing them into an undifferentiated Other.[25] This aspect does not necessarily immediately fit well. Because the artificial beings are created and are created for particular purposes, their functional differentiation is frequently emphasised. Thus in *Blade Runner*, the four rebellious replicants are introduced by their file descriptions which list what they were designed for, however it is made clear that they are not particularly individualized (Pris, for instance, is a 'basic pleasure model') and only Rachel, the initially non-rebellious experimental model, seems likely to have been a 'one-off'. Artificial humans are not so much undifferentiated as replicable, ultimately objects of mass production. That they are essentially homogenized is revealed by how, in the process of struggling to become recognized as human (generally a shared and unquestioned aim, for what more could the artificial desire?), they reveal individual characteristics and differentiate themselves. This has not applied generally to cyborgs however. The multiply manifesting cyborgs of the late 60s and 70s, essentially creatures of British television, (cybermen, servos *et al*) were absolutely undifferentiated; identical featureless beings obedient to their mistress or master, they did not change in the course of the narrative and never aspired to, nor were accredited with,

[25] e.g. Homi Bhabha: "The Other Question - the Stereotype and Colonial Discourse", *Screen*, 24(6), Nov.-Dec. 1983 pp 18 - 36. Also Chandra Talpade Mohanty : "Under Western Eyes: Feminist Scholarship and Colonial Discourses", *Feminist Studies*, 14(3), Fall 1988, pp 333 -358.

human status. This strong differentiation of cyborgs from androids, though not evident in the recent *Robocop*, is contrary to the homogenizing characteristic of colonial discourse. Fictional cyborgs are the oddities here even when other artificial beings are considered. If robots are depicted as intelligent (e.g. C3PO in the *Star Wars* trilogy), they are not much differentiated from androids in the revelation of their essential humanity - perhaps a compensatory instance of accord with colonial discourses. The anomaly about the robocop may be explained by his being diegetically described as a robot, but probably most influential was the shift in his scientific credibility.

The equivocal differentiation reflects an instability in the construction of the subject of SF, analogous to that in colonial discourse. Homi Bhabha has noted how the fixity conventionally implied by the stereotype depends on the simultaneous acknowledgement and disavowal of difference.[26] However momentary the adoption of a particular subject position, it is always problematic.

The difficulties evident in attempting to examine the posited subjectivities of artificial beings are variously addressed by this. The artificial beings least satisfactorily described by analogy to colonial discourse are intelligent computers. They are also the most fixed and the most strongly marked as possessing a unitary subjectivity. Robots too tend this way and it seems most probable that it results from their being predominantly (or entirely) machines. They do not in consequence pose such a problem to what it means to be human. They usually have no function nor position in SF other than as workers. When they are shown attempting to move outside this, it is overwhelmingly into the familial and the transgression this represents is handled by the fictions being generically inflected either by comedy, as for example *Heart Beeps* (1981), or by horror, as is the case with *Demon Seed.*

Cyborgs and androids are both less marked by the mechanical and hence more similar to colonial subjects. In what follows, various ways in which they demonstrate the "fixed form of difference"[27] of the stereotype and how the more nearly they approach the human, the less unitary their subjectivity appears, will be indicated. As will be seen to be so often the case, *Android* provides a particularly interesting example. Max, the young android hero, is shown at work, at play and in love; his non-human abilities and reactions are more evident in the first and his human in the other two, but he still exhibits a high degree of consistency. When late in the film his creator, the scientist Dr.

---

[26]Bhabha: "The Other Question", p29

[27]Ibid., p30

Daniel, wants to use him to kill the intruding human escaped criminals, he effects a personality change physically, by switching a circuit chip in Max's skull. Quite literally reinscribed, he sees and behaves differently. Such variations in personality, though few are as explicitly depicted as this, can reasonably be understood as an acknowledgement of a rearticulation of the subject.

In *Blade Runner* too the replicants, created as workers, are allowed to exhibit a range of positionalities as they seek to extend their life spans. Yet they have been created to be short-lived precisely because the longer they live the more complex and dangerous they become. While they are no more than workers, their superiority is desirable, but their loss of this unitariness (and the development of social or political awareness, familial concerns or desires for more) is indeed a fall into sin.

The difficulties with artificial beings all centre around their functions as workers. Whether intelligent battle computers or sex-doll androids, they have been created to work and usually to better human capacities in whatever their specialised field is. They are stronger and smarter, more loyal servants, more fluent interpreters, more compliant bed-mates. Problems arise when the worker exceeds the mechanical and wants more; when the unitary subjectivity perceiving everything through work, fragments and other desires are articulated. The artificial human signifies its move to humanity by wanting something other than those things which serve the interests of its owner/employer. Usually it is the attempt to get whatever this is, that leads to the revolt against the creator. Where the artificial being does not want more and retains its fixity, some other device will be needed to drive the narrative - as is the case in *Alien* where Ash serves the Company until his end, while the alien itself determines the action.

In asserting that the way artificial humans are characterized and deployed in film and TV fictions has characteristics of colonial discourses, in no way is an identity between actual colonized peoples and these imaginary non-human artefacts being suggested. The subjects of colonial discourses are themselves constituted within discourse, although they are not 'equally' artificial, having 'real world' referents. What is being examined is an analogy, and whether, as colonial discourses are increasingly questioned and contested, some aspects of them transfer to a less contested area, and, if they do, what can be surmised from this.

Bhabha points out that

> "the objective of colonial discourse is to construe the colonized as a population of degenerate types on the basis of racial origin, in order to justify conquest and to establish systems of administration and instruction".[28]

This provides part of the reason why a colonial discourse which incorporates a racist one, rather than a racist discourse alone, is more suited to considerations of artificial humans, despite the absence of a land to be occupied and subjected, the absence in fact by and large of a colony. The basis of the particular suitability lies in the reasons for which the discourse is constructed. Racism within colonial discourse is used in part to support purposes with questionable moral bases. For artificial humans, it is not 'conquest' that needs to be explained, but creation, and the systems needing establishment include, within administration, the regulation of that creation and its subsequent deployment. The population may not strictly need to be construed as degenerate, but their origin, indeed their generation, provides a physical basis to which their subordinate, disposable status can be ascribed. They are made labourers in our image and we compensate for our hubris in their creation by ordering their existence and restricting their opportunities to exhibit their imperfections (by keeping them off-planet, by giving them limited life-expectancies, or by programming their behaviour according to Isaac Asimov's laws of subordination to the human[29]).

The appropriateness of colonial discourses to discussions of artificial humans lies also in the way such discourses are moral rather than truthful. As ultimately political discourses they attempt to call upon truth (as with the 'scientific' arguments common in the nineteenth century supporting racism and sexism on the basis of brain size), but this is to support their perceptions about the rightful location of power. It is somewhat ironic that it is not possible to talk about artificial humans in a discourse with a claim to speak the truth,

---

[28] Ibid., p 23

[29] These are actually known as Asimov's Laws of Robotics, articulated as follows:

1. "A robot may not injure a human being nor, through inaction, allow a human being to come to harm.
2. A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law."

quoted in Patricia S. Warrick: *The Cybernetic Imagination in Science Fiction*, Cambridge, Mass., The MIT Press, 1980. p65

because as this is done the beings shift to become machines or humans, but that a moral discourse within which their existence can be circumscribed, is already effectively in place.

Another characteristic of colonial discourses is the way in which the Other is used to define the One.[30] Human is the centre inasmuch as non-human defines the boundaries, the margins, the periphery. Machines and animals have long served this function, but as slippage occurs, as machines and animals 'acquire' language capabilities, depiction of artificial humans helps explore and ramify the periphery, stabilising the centre. Post-modern theories may be used to revalue this function of colonial discourse, pointing to the moves to the margins and their re-evaluation, as well as the moves of the margins to the centre (Stuart Hall's 're-diasporisation'[31]), but it may indeed be that within this 'real world' shift, stories of cyborgs and androids function as sites within which residual ideologies can lodge. The discourse can remain in circulation with its ideological content undisguised, because its referent is so very absent. These stories about artificial humans can only be understood by analogy with the colonized; when or as the analogous structure decays, the discourse is weakened, but if it can be established in a modified context before such a decay occurs, then it remains available for later deployment. Alternatively (or even in addition, for ideological work does not require consistency and colonial discourse is characterised by hybridity) the androids' demonstrations of humanity could be far from disguised depictions of the move inwards of the marginal.

Having established the analogy, it is often quite striking to note how the stories of artificial humans, and particularly of androids, act out colonial discourse. There is for example the essential hybridity. Bhabha points to the ambivalence of the discourse which both requires that natives be seen in certain situations as progressively reformable (the 'civilizing' mission of the colonizer) and that they also be seen as separate, different from the colonizer, and visibly so, in order that their capacities for self-government and independence can be denied.[32] Thus some androids reveal their 'humanity', their ability to be 'civilized', while others reveal their intransigent malevolence, their hybridity often manifesting as unpredicability (will **this** one be good or

[30] e.g. Edward Said: *Orientalism*, New York, Vintage Books, 1979.

[31] Stuart Hall: "Centre and Periphery in the Field of Representation" , Address to the Association of Art Historians Conference, University of London, Institute of Education, 6 April 1989.

[32] Bhabha: "The Other Question", pp34-5

bad?), but always their separation from 'true' humans is shown. 'Skin', the central motif of separation in colonial discourse, does not function in this way for androids (who are almost invariably white), although the bigoted police chief in *Blade Runner* refers to the replicants as 'skin jobs', a term which Deckard, the blade running hero, glosses for us in voice-over as analogous to 'nigger'.

The function that skin performs of displaying colonial status on the body of the colonial subject, is replaced for artificial humans by a particular form of dismemberment - usually involving the head, locus of the brain which determines life (as in 'brain dead') and the eyes, symbols of the soul. Separation from 'true' humans is shown by the ability of androids and cyborgs to continue talking through or despite dismemberment: Dr Daniel in *Android*, the 'simular', an android/robot replacement for the hero Alex, in *The Last Starfighter* (1984), and Ash, the science officer in *Alien*, all speak after their heads are removed; the terminator, robocop and Darth Vader in *Return of the Jedi* (1983) all demonstrate their particular being by dismemberments around the eyes. Intelligent robots may be totally taken to pieces and reassembled without loss - C3PO, the gunfighter in *Westworld* and the revealed-as-a-robot terminator must be shown to be thoroughly dismembered. Apparently they feel no pain; certainly they require no anaesthetic - though C3PO becomes rusty and requires oiling. None of these scenes is incidental or passed over rapidly. They establish and display a **rational**, even a scientific, basis for different treatment. The scenes assert that these beings are not like people - they talk while wires hang and white fluid drips from their severed necks; they matter of factly remove long screws from their own temples. They do not feel things as we do. An illuminating variation is provided by Bishop, the android in *Aliens* who does not turn against his creators and indeed redeems artificial humans from the status of betrayer, which Ash in *Alien* had exemplified. Although surviving as little more than a pair of arms and a head and leaking the characteristic white fluid from his shattered rib-cage, he is able to play a decisive role in Ripley's triumph over the mother alien and escape with the child, Newt.

There is however a further difference here. These examples are all of male artificial humans. For female artificial humans, the situation seems less clear. Their doubled difference may be one complication, their comparative absence certainly is another. Cassandra in *Android* remains whole, undismembered, as does the female space-ship engineer in *Spacehunter:*

Adventures in the Forbidden Zone (1983) although she is soon killed off, and none of the female replicants in *Blade Runner* are present during the scene in the film which substitutes for dismemberment - the one showing the construction of replicants' eyes. The artificial women in *The Stepford Wives*[33] are not shown disassembled, though the non-intelligent female robots of *Futureworld* (1976) are. These are insufficient examples to be definite on this point, though they are virtually all the available instances. Some other visual display of non-human status is usually achieved. It may be that the dismemberment of women is such a strong generic marker of the horror film, that this acts as a restraining factor here where, after all, other devices can perform the differentiation.

The problem of the doubled difference of artificial women has particular importance because of the role that women traditionally have played in defining gender difference. It is women who are different; men who are the norm. Multiplying difference is always likely to cause difficulties to systems built on binary oppositions. It was noted in the previous chapter how in *Star Trek* only Lt. Uhura is allowed to be doubly different (black and female) and still human - though *Star Trek: The Next Generation* is not quite as restricted. None of the artificial women being considered is other than white. Depicting artificial women rarely (or, if black, never) is one solution to the problem of intensified Otherness, depicting them so frozen in stereotypical femininity that gender stereotyping becomes risibly obvious (*The Stepford Wives, Westworld* and *Futureworld*) is another.

Cassandra, Dr. Daniel's 'perfect woman' in *Android*, is quintessentially the classic android - emotionless, rational and with no scruples about violence. She is clearly the most intelligent being in the film and equally clearly she is 'inhuman' and counterposed to the lovable, fallible, human-aspirant Max, the male android so much more 'feminine' in his dependence and slight physique. Cassandra's extremely feminine appearance, including her very long blonde hair, is negated by her cold rationality and total competence with an almost androgynous result. Gender does not signify difference here any more than genesis does - Max is without doubt the most 'human' being in the film and the three androids are as different from each other as the three main humans are.

Janet Bergstrom has explored some examples of androgyny in artificial women, though not in *Android*, to demonstrate the unreliability of classic sex

[33]So few are the instances, that the *The Stepford Wives* has been included although it is not explicitly set in the future. It might be considered to be set in the future because it contains one element which is not technically feasible now (the android/robot women themselves).

roles in contemporary society. She is not concerned with mainstream films, but notes that while it should be expected that sexual difference would function strongly in films where the human/non-human distinction is under question, this does not necessarily occur.[34] The women she examines embody the androgyny of the fashion model, not sexless, but marked by both genders. As well as her example of Cindy, the model who is duplicated by computer simulation in *Looker* (1981), such androgyny may be seen in the replicants of *Blade Runner* - in Pris' gymnast's body and in Rachel's confidence in her first encounter with Deckard. (Her loss of this androgyny accompanies her gaining of the human mate.) But this acknowledgement of the instability in sexual difference **as well as** a growing uncertainty about the human/non-human distinction is too great for the majority of 80's films, especially those achieving a substantial audience. They deal with the difficulty by concentrating on the latter uncertainty - about humanity. This emphasises again how it is the question of what it means to be human that is explored through the fictional portrayals of artificial beings. Constance Penley has even suggested that this is the only difference that can now be readily represented since there is "increasingly less practical difference between men and women".[35]

Suggesting that there is no discernable difference between real and artificial humans appears to be extremely unsettling both within and outside the fictions. *Blade Runner*, which comes closest to asserting that there is no difference, spends a considerable amount of time on the minutae of the test which uncovers the artificial. The importance of this test outside the fiction is evident in its being the subject of the only section of dialogue to transfer from Philip K. Dick's novel *Do Androids Dream of Electric Sheep?* on which the film is based. As well as this, in reviews of the film and also in a number of the critical articles on it, this same Voigt-Kampff test, a totally fictional device which performs the differentiation within the narrative, is referred to as if had some extra-textual existence. The disquiet with the suggestion of the indistinguishability of the 'real' and artificial human appears even greater than it is when the distinction has to be made between humans and aliens disguised as humans - as in *Invasion of the Bodysnatchers* (1956 and 1978) or *They Live* (1988).

---

[34]Janet Bergstrom: "Androids and Androgyny", *Camera Obscura*, Vol. 15, 1986, pp37 - 64. pp39-40

[35]Constance Penley: "Time Travel, Primal Scene and the Critical Dystopia" in James Donald (ed.): *Fantasy and the Cinema*, London, BFI, 1989. p204

The reduction suggested by Bergstrom in the importance of sexual difference when the issue of the meaning of being human is being explored, is perhaps partly explanatory of the particular treatment of such central aspects of being human as reproduction and sexuality. The depiction of artificial humans gives the illusion of masculine birth, of their coming from nowhere, or at least from nothing/no-one female. There may be few artificial women, but there are no female creators. The nearest to one is the female executive second-in-charge of the Robocop team, but the cyborg himself is Bob Morton's 'baby'. Tyrell and Sebastian create the replicants and Batty acknowledges this by addressing Tyrell as Father. Dr. Daniel creates both Max and Cassandra; the point is established before we learn that he too is an android. As earlier one solution to the problem of how to show the doubly different was suggested to be not to show them at all, it may be wondered whether, if women are needed neither for procreation nor to represent the Other, they need be shown either.

This relates to what Vivian Sobchack has called the main unconscious problem of the SF film genre, which

> "centres around the male desire to break free from biological dependence on the female as Mother and Other, and to mark the male self as separate and autonomous. The realization of this desire - certainly at the level of science fiction narrative - necessitates the rejection and repression of female difference and its threat to male autonomy."[36]

She is concerned with astronauts rather than artificial beings and the essay comes from the early 80s, but the general applicability of this point is undiminished. Such an escape can no longer simply be made by going into space since women crew and even command the spaceships. It must be made more fundamentally.

Male creation of life is only part of the response. The beings born without mothers may not need nurturers either. They are born/created adult with memories (if such are deemed desirable), knowledge and behaviour patterns all given by scientific means along with life in the laboratory. *Demon Seed* provides something of an exception. The computer Proteus himself is laboratory-constructed and certainly not humanoid, being represented as

[36]Vivian Sobchack: "The Virginity of Astronauts: Sex and the Science Fiction Film" in George Slusser and Eric S. Rabkin (eds.): *Shadows of the Magic Lamp*, Carbondale, Southern Illinois University Press, 1985. p47

contained within several huge turbine-shaped devices and manifesting on large video screens in abstract light displays. The independent successor he creates however does require a mother, although she is not required for long, since gestation takes only three weeks and the child (after a further even shorter period in an incubator) is born aged eleven.

The sexuality of the artificial human is another aspect that can be explored through analogy with the colonial subject. In the same way that the colonised is both sexually excessive and uncomplicatedly innocent, occupying the margins and leaving the centre to the coloniser, so the artificial human is unable to exhibit 'normal' sexuality. Although not from within a colonially discursive context, Dan Rubey's comment about *Star Wars* is relevant here. He examines how Luke Skywalker's racial superiority is structured with regard to the robots and various aliens.

> "The robots and the Wookie perform another function in the fantasy system of Star Wars. They serve as non-competitive, non-sexual comrades and friends, one of the chief emotional satisfactions of racism."[37]

While not endorsing Rubey's assertion about the emotional satisfactions of racism (and satisfactions for whom?), the innocence of these characters is certainly striking. Admittedly they are in a film directed primarily at children so the innocence can be argued to be determined by the nature of the audience, but it does contribute to the overall cross-textual impression of artificial beings. Further 'non-competitive, non-sexual comrades and friends' are to be found in other films with substantial proportions of children in the anticipated audiences and in the majority of television programmes that feature any kind of artificial beings, for instance Twicky and Dr. Theopoulos in *Buck Rogers in the Twenty-fifth Century*. A slightly more ambiguous example is provided by the 'little friends' made by the genetic engineer Sebastian in *Blade Runner*. Mirroring their creator's disabilities and made tiny to be utterly unthreatening, they nonetheless have some of the lascivious aura traditionally possessed by mannikins.

Further exceptions to sexual centrality come with the displayed sexuality of Max in *Android*, Byron in *Slipstream* and Roy and Pris in *Blade Runner* which in each case is that of adolescents rather than adults. Sexually

[37] Rubey: "*Star Wars*: Not So Long Ago", p93

excessive figures include Hector, the robot who pursues Farrah Fawcett-Majors in *Saturn 3*, the sexually inquisitive computer in *Electric Dreams* (1984) and the computer which forcibly impregnates Julie Christie in *Demon Seed*. Although this last example would qualify regardless, probably any sexuality exhibited by a computer would be deemed excessive. Almost the same applies to robots. Strangely, androids and cyborgs whose behaviour is negatively-coded are usually sexually inactive.

The innocence referred to above as characteristic of a significant number of the artificial beings, is part of a tendency to depict them as childlike - again a phenomenon of colonial discourse. It is by no means pervasive either in the discourse or throughout the various examples of androids, cyborgs and robots (though if the associated adolescent sexuality is added, it becomes more noticable), but it functions as yet another device to deny equal status. It is most common of robots and least of cyborgs - through even the robocop shows some evidence of it as when on the run he can only eat baby food. He disputes such relegation however by using the empty jars for target practice.

The childlike depiction is in conflict to some extent with another area in which artificial humans occupy the margins, which is the issue of rationality. Most androids, cyborgs and computers are hyper-rational - and in a number of instances it is seen to counterpoint their asexuality. Ash is a prime example here, as are the majority of computers. Perhaps to compensate for this lack of sexuality (and to provide narrative interest which rationality may be regarded as lacking), rationality is frequently accompanied by violence, depicted as the result of the rationality itself. Both Ash and MUTHR, the computer, in *Alien,* rationally follow their directives to the point of allowing the crew to be killed; HAL similarly kills his crew in following his orders; and Byron, the emotionless perfect servant of *Slipstream*, has killed his master, because it seemed the logical thing to do, even before the film opens. The latter's rationality, which is by no means as strongly marked as his lack of emotion, is impaired by his falling in love. Although he continues to appear facially impassive after the killing of his beloved, he violently disposes of her murderer before returning to his original highly quixotic mission. In some ways he appears more like a robot.

Robots, even intelligent ones, are rarely depicted as particularly rational, perhaps because they are usually treated as, at best, sub-computers; they are primarily workers. Like computers, their programming is foregrounded, but since they obviously signify 'hands' rather than 'brains', they may run amok as they do in *Saturn 3*, *Westworld* and *Runaway* (1984). This distinction

between 'hands' and 'brains' applies to the mechanical not the biological. Androids and cyborgs both are depicted as workers. Dr. Daniel in *Android* declares on his animation of Cassandra: "I have created the perfect working class, not to mention the perfect woman." Apart from Dr. Daniel himself, whose android status is withheld for narrative purposes, the only middle class android is Rachel in *Blade Runner*. She is also the only android allowed even the possibility of a happy, comparatively equal relationship with a human.

The older cyborgs were the acme of passionless, violent rationality, and inasmuch as the more recent terminator is a cyborg he certainly is impassively violent. Perhaps it is his essential robot nature that denies him rationality, though opportunities in the film for a purpose-built killing-machine to exhibit that characteristic would seem slight. Robocop, the most recent cyborg, maintains most of the classic pattern: he tonelessly advises the attempted rape victim he has saved to consult a rape crisis centre; and he comments that he can remember the family of his human components, but not feel anything about them. Diegetically coded as a robot, the constraints of his programming are central to the narrative tension.

The rationality of cybernetic systems, including here all the artificial beings, can be regarded as derived from seeing them not as imitations of human intelligence but from regarding human intelligence as reflecting a cybernetic model. This is a very major change in perceptions about what it means to be human and about the relationship beteeen human and machine, but it is one that occurred in the 'real world', not the fictional. Now, however, as Barry King says,

> "the cyborg ceases to be regarded as the subordinated creature of human intelligence and reason, and is increasingly viewed as a paradigm of such qualities."[38]

This is not as specific as it sounds, for King does not differentiate androids and cyborgs, and his main example is the android Ulysses in *Making Mr Right* (1987). Ulysses provides an indication of the moves of the margins to the centre, or vice versa, for, while rational, he is also compassionate and sensitive, strongly in contrast to the warped single-minded rationality of his human creator. Nonetheless, in almost all the films released since 1982, the

[38]Barry King: "The Burden of Max Headroom", *Screen*, 30(1&2), Winter/Spring 1989, pp122 - 138. p124

cold implacability of the artificial being has been modified - the robocop's final smile promises humanity, the android in *Aliens* saves Ripley and the child, the reawakened and reprogrammed HAL in *2010* sacrifies himself to save the Russian-American crew. The android/robot replacement for the hero Alex in *The Last Starfighter* is another willing sacrifice, Batty saves Deckard and Byron's 'aberrant' behaviour has already been noted.

The change from cold rationality to compassion has also been noted by the main chronicler and analyst of the American SF film since the 50s - Vivian Sobchack. Updating her earlier study and taking account of post-modernism, she writes

> "In the context of our newly exteriorized self-consciousness, the contemporary SF film has emphatically figured robots, computers, androids and replicants seeking emotional as well as functional fulfillment. They evidence doubt and desire, a sense of negation and loss, a self-consciousness and sentimentality new to the genre."[39]

The exception to this warmer, more human rationality is Cassandra organising Max into disguise at the end of *Android* so that they can return to Earth, but not for the pleasurable indulgences that Max had earlier had in mind. "We are not meant to be governed by the whims of men" she says, telling him that they will join others like themselves who already live there in hiding. This is an extremely rare instance of political awareness shown by an artificial human. Although computers may take independent political decisions - Proteus refuses to mine the sea-bed (*Demon Seed*) and the Russian and American computers join forces to attempt world domination in *Colossus: The Forbin Project* (1969) - artificial humans hardly ever do. Rebellious androids are usually concerned with some individual quest: Byron wants to find android Shangri-la; Hector, the robot in *Saturn 3*, wants sexual satisfaction; and the replicants want extended life-spans. Though this last in particular is presented as an understandable desire, presumably shared by other replicants, it is not shown as other than redressing an individual injustice. The social awareness of the artificial is generally low - 'emotional and functional fulfilment' is the extent of their aspirations.

Before leaving consideration of colonial discourse in fictional

[39]Vivian Sobchack: *Screening Space*, pp 237-8

presentations of future artificial beings, one consolidated example will be presented. *Blade Runner* has been chosen not only because it provides a very interesting case, but also because the film has been so influential on subsequent representations of the future and on critical discourse about them.

There are explicit references in the film to colonies. The advertising blimp which drifts through one of the early scenes, advocates migration to the off-world colonies and we later learn that this is where virtually all apart from the poor and unhealthy have gone. The replicants are created as a labour force specifically for the colonies and are legally forbidden to live on Earth. This idea that the homeland would be polluted by the presence of the colonised - a one-way pollution since colonies are not polluted in return - is not uncommon in colonial discourse.

The requirement that the colonised be discernably different from their colonisers is directly addressed by the replicants being termed 'skin-jobs' and our being informed that this is taboo racist language. This appears to testify to current racism more than future bigotry since their skin does not initially reveal their difference. Stephen Neale rejects the film's equation of racial difference and human/non-human difference on this basis.[40] Yet when the replicants finally demonstrate their difference in a way which the audience can see, it **is** through their skin which does not burn or blister when placed in boiling water. It is admittedly not a particularly strong demonstration - only Pris performs it - but the point of the film is to reveal the closeness of humans and replicants, to be able to be read, in effect, as something of an anti-colonial text.

Neale outlines a pattern of Oriental/Occidental oppositions within the film[41] which could provide a further colonial dimension. All the Orientals are marginal - even the would-be blade runner, the Hispanic, street-argot speaking Gaff, is referred to contemptuously by his bigoted boss. It is Gaff however who finally lets Deckard and Rachel escape. It may be that this is intended as a gesture of solidarity with the oppressed.

On the matter of the occupation of the margins, *Blade Runner* reveals its postmodern credentials - the margins move to the centre and the centre moves out. The lack of emotion and empathy which supposedly betrays the replicants in the Voigt-Kampff test is negated in the long final scene when not only does Batty save the human Deckard, but he engages in a long poetic monologue on the beauties of work in space. (It is also in this monologue that he makes explicit reference to being a slave.) Their lack of memories is

[40]Stephen Neale: "Issues of Difference: *Alien* and *Blade Runner*" in James Donald (ed.): *Fantasy in the Cinema*, p220

[41]Ibid., p216

negated by Leon and Rachel's collections of 'family' photographs. Their position nonetheless is established on the margins, in the place of colonial discourse, and moves inward from there. Sexually only Rachel achieves socio-centrality with a 'real' human lover - inasmuch as Deckard can be identified as such.

This is by no means a necessary reading however. The film is in this, as in so many other ways, ambiguous. Cutting right across the view of the replicants as analogues of colonial subjects is the physical appearance of Rutger Hauer in the role of Roy Batty. He was described by Phillip K. Dick as looking like "one of those blonde brutes that Hitler dreamed up in the laboratory",[42] which neatly sums up both his superman look and his status as disposable object.

While the analogy with colonial discourse was productive, a similar one with anti-colonial discourse is less so. Anything analogous to anti-colonial activity constitutes a most meaningful absence. Even Cassandra's action is pathologised; we have been told earlier in the film that the tendency of androids to think for themselves is known as the Munich **Syndrome** (rather than as political awareness). Involvement in any kind of political or social movement is similarly improbable unless under the aegis of some human 'proprietor' or protector. The only exception is in *Friendship's Death*, where the robot Friendship joins the Palestinian struggle, but then not only is she an alien robot, but she appears in an avant-garde film.[43] More typical is the failure of the Federation at the end of *Star Wars* to reward any of the non-humans who were involved in the successful action against the Empire, while giving medals to the humans, Luke Skywalker and Han Solo. This can be seen as most blatantly the behaviour of a colonial power (particularly to the Wookie, who as a sentient alien could not have been regarded as merely obeying programming, as might have been the case for the robots). At the end of the trilogy itself, the various heroes are depicted explicitly in a colonial situation, in verdant nature surrounded not only by their various artificial 'companions', but also by a whole tribe of other charming, visibly different, civilisable primitives - the Ewoks. The question of rebellion certainly does not arise here, even injustice would be unlikely.

As far as televisual beings are concerned, things are even more bleak.

---

[42]Douglas Kellner, Flo Leibowitz and Michael Ryan: "*Blade Runner*: A Diagnostic Critique", *Jumpcut*, Vol 29, Feb. 1984, pp6-8. p7.

[43]Its screening on C4 late in 1989 presumably increased its audience considerably.

Artificial beings accept their lot. Various intelligent computers in *Blake's 7* are members of the resistance to the Federation, but only by virtue of being owned or requisitioned by humans who are resisters. This is also the way Max Headroom, in the dramas rather than the chat shows, acts oppositionally.

It may seem unusual to talk about artificial humans in terms of colonial discourse rather than in terms of the simulacrum and the hyper-real, particularly when at the outset Sobchack was quoted on the challenge offered to the human by electronic replication. More than one critic has noticed, for instance, how quintessentially the televisual character Max Headroom, commonly referred to as a cyborg, 'embodies' the hyperreal.[44] Apart from the quite significant difficulties in maintaining this identification (to be examined later), there are further ones when Max Headroom is examined, as here, together with large numbers of other artificial beings. He seems much less special when compared to androids, cyborgs and intelligent humanoid robots, rather than to actual actors and chat show hosts.

The case of Max Headroom, however, provides an opportunity to test whether the concept of the hyperreal provides a better way to discuss artificial beings than colonial discourse has done. Lili Berko uses Baudrillard's formulation to argue that Max Headroom and other simulated images are absolutely hyper-real, being copies without originals. Max Headroom, she asserts, has made the body, the human body and the body of reality itself all appear unnecessary.[45] It is rather ingenuous to assert that there are no originals for high-concept simulations; the original is in a different form from the copy in that it is a computer programme (and may be replicated as such as well as on a TV screen), but then the original of an etching is similarly other (and may similarly be reproduced in both forms). Like Barry King in his attack on Berko's views on computer simulation and on Max Headroom, I have long preferred Umberto Eco's view of the hyper-real to Jean Baudrillard's. For Eco the hyperreal is that in which the copy, by virtue of being more real, vitiates the original, or attempts to do so.[46] Even in this version, however, hyper-reality seems an inadequate explanation. For a time it may have seemed that Max Headroom, as chat show host, was displacing the fully human ones - TV reviewers certainly suggested it - but there is now no sign of their having even

---

[44]For example, Lili Berko: "Simulation and High Concept Imagery: The Case of Max Headroom", *Wide Angle*, 10(4), 1988, pp51-61.

[45]Ibid., p 51, p58

[46]King: "The Burden of Max Headroom", pp128-9 and Eco: *Faith in Fakes*, p7.

been modified.

The most interesting successor to Max Headroom is the 'fully' computerised interviewer on *Star Test* (C4, tx 1989), but this has not even been noticed as such. Certainly the body has disappeared; no interviewer appears on screen and the interviewee selects categories and a number by apparently pressing on the camera lens/the inside of our TV screen to activate a voice-over question. The voice however is human, just as Max Headroom's head was *au fond* a human actor's. There are no endearing traces of technological imperfection as there were with Max. In fact the extreme close-ups on the interviewee's hands or upper lip combine with the super-imposed computer graphics to evoke surveillance techniques and suggest that it is the physical human body which betrays itself. Nonetheless, the body which has been replaced is the interviewer's, effectively thus Max's, the human body undergoing the Test remains necessary.

Berko proposes

> "that in the age of digital simulation [. . .] the maintenance of power through political anatomy has been appropriated by the computer and its attendant codes of simulation and high concept imagery."[47]

There is no wish to disagree with the importance of the computer and its various products to the maintenance of power; the point has indeed been emphasised, especially when examining coverage of the Greenhouse Effect. High concept imagery certainly has a privileged role to play in the representation of truth and Berko's assertion that in Twentieth Century America, the unenhanced, undigitised image appears "unreal, unclean and impure"[48] is very relevant here, but as yet its relevance to the representation of artificial beings, especially within fictions, appears slight. Max Headroom does not figure the appropriation of such power as the computer appears to have managed, in any notable way. In fact quite the reverse. His fully digitised image could not be sustained and the image that was transmitted was a degraded manipulated version of the video image of a heavily made-up actor. The (intentional) malfunctions that made him endearing served to reassure the viewer that computers were not (yet) all that powerful.

King identifies two important themes concerning the effect of cybernetic

[47] Berko: "Simulation", p58

[48] Ibid., p56

systems on the human subject.

> "What forms of understandings with what kinds
> of limitations, articulations and suppressions
> are structured and reproduced by cybernetic systems?"

and

> "What kinds of subject, and what kinds of experience,
> are produced and reproduced by interaction with
> cybernetic systems?"[49]

These questions interact until King produces Max Headroom as a representation of the post-modern subject which he identifies as the new professional middle class.[50] He sees cyborgs in general representing behaviour as always goal-oriented, since it is a manifestation of a programme. Max's diegetic world of TV hosting and investigative reporting is directly representative of that of the professional middle class as is his sensibility - ironic, parodic and full of insider jokes based on cultural knowledge. It is even so, representative of a very small sub-section of humanity as a whole. Even if Max can tell us something about being a member of the professional middle class, this is not necessarily widely informative on what it means to be human.

King treats Max as simply an extreme version of the general cybernetic system and uses 'cyborg' to refer to any artificial human and probably intelligent robots too. His references to other filmic examples (he cites no other televisual ones) are all chosen to make a general point about how the cyborg is more likely to represent reactionary authoritarianism than liberatory potential. It is necessary to decide whether Max Headroom is a singular example or if perhaps King's ideas can be applied more widely. The wider application is difficult here because Max is not a cyborg. In attempting to incorporate Max into the general schema of artificial beings, while there is no doubt that he occupies the machine - - artificial human side of the semiotic square more happily than the human - - (animal) one, his precise location in the four part android/cyborg/robot/computer scheme is unclear.

It seems more sensible to class Max Headroom in with the other creatures of light like holograms, on the basis of their all having posited visual but not solid existence. All could disappear within the fictions at the turn of a switch. So far from being powerful, this insubstantiality makes them

[49]King: "The Burden of Max Headroom", p123-4

[50]Ibid., pp132-3

exceedingly vulnerable. The characteristic they are most likely to share - nerviness - testifies to this. There are not all that many of them: one in *THX-1138* (1969), a large number in *Tron* (1982), who with their computer generation intra- and extra-diegetically would seems closest to Max, a few in *Looker* and one mobile hologram and one bodiless computer screen-located head in *Red Dwarf*. Most, but not quite all, are doubles of diegetically 'real' people and thus though arguably simulacra, certainly not without originals. Their most striking aspect here is how different they are from the other categories of artificial beings, perhaps because of this 'present' referent. They can, and usually do, laugh and feel other emotions, they are by no means hyper-rational, they exhibit neither excessive nor absent sexuality and they are no more likely to be malevolent (certainly not towards their creators) than any collection of 'real' humans, they also include the only instances of black artificial beings. Colonial discourse seems inappropriate to them and they are not very satisfactory occupants of the 'artificial human' category of the semiotic square. The only way in which Max Headroom seems oddly classed with them is in the ambiguous relations with the present and the 'real world' of his chat show manifestations.

With the probable exception of the hologram in *THX-1138*, they seem to be providing precisely what Donna Haraway warned against in her advocacy of explicitly situated knowledges. As indicated earlier, this is what she calls "the god trick of seeing everything from nowhere",[51] of forgetting, with the use of so many technologies of vision, that all representations have view**points**, that knowledge always comes from some situation. The copies which are claimed to have no original, indubitably have an origin; the cleaned-up digitised image reflects some person's view of cleanliness and clarity. Most of the creatures of light make this obvious by being replicas possessed of a diegetic original. This further reduces the applicability of the term 'hyperreal'.

The creatures of light are best regarded as exceptions rather than typical artificial beings. Presented more as duplicates of 'real' humans than as independent, if artificial, beings, they are not even very useful in exploring the meaning of being human. Colonial discourse, which provides so illuminating an analogy for the apparently more solid beings, is not informative here and the hyperreal has not proved particularly productive.

The investigation of the semiotic square that proved so useful in

[51] Haraway: "Situated Knowledges", p581

indicating the modulations in the fictional portrayal of artificial humans in the light of what was scientifically possible, concentrated on only three of the square's four corners. The $\overline{S2}$ term was identified as animal, but little attention was paid to it, or to possible movement along the left hand continuum from human to animal. The concern of this chapter is with artificial beings and what they tell us about being human. The latter concern is certainly informed by considerations of what it means to be an animal, but so too can the former be.

Although no films or TV programmes which explore human/animal combinations have yet been referred to, this does not mean that they do not exist. They have been ignored so far in part because they tend to be horror films not set in the future, but the BBC-TV drama serial *First Born*, which examined the birth and early life of a human/gorilla hybrid, is a recent example which (largely) avoids both these problems. It reveals the characteristic 80's diminution in the posited difference through depicting the child differing from the fully human only in being much hairier at birth (but rapidly losing this) and by being unable to speak until his larynx is surgically altered. Diegetically, Gor, the hybrid, is declared to lack a soul and the religious reading is emphasised in the background and title music.

The blurring of the human/animal distinction, mentioned earlier, is largely at the level of academic studies in, for example, primatology, although some of the spreading ecological awareness involves a philosophical perception of strong relatedness. Nevertheless, the idea of human/animal hybrids apparently must have been considered still unsettling, since *First Born* does not conclude until Gor has been killed. There is a generic gesture to horror (or perhaps the hope of a sequel) in the unconfirmed suggestion that the child whose christening provides the actual conclusion is one quarter gorilla.

The only instances of human/animal hybrids totally unmarked by horror seem to be human/fish ones, as in the TV series *The Man From Atlantis* and *City Beneath the Sea* [aka *One Hour to Doomsday*] (1970), though in neither of these cases did the hybrids seem to have been created by interbreeding. It may be that this, with its aura of bestial miscegenation, is, like dead flesh, irredeemably marked by horror. Although various 'aquamen' (and women) continue to appear in SF literature, recent appearances in film or on TV have been neither in SF contexts nor located in the future.

It is not merely the human - - animal continuum that has been ignored up to this point, but the intrusion of the animal altogether into the interminglings of human, machine and non-human. To some extent 'human' brings with it

aspects of animal, but Jameson's belief in the potential productivity of the frequently unidentifiable corner of the semiotic square tentatively identified here as 'animal' should be recalled. The silence in SF about animal involvement in artificial beings (Dr. Who's K9 and other robot pets/pet robots excepted) is in part a generic one - a component of the troubled generic distinction between SF and horror that provides a major area of transgression - but also the result of the particular ideological closure Jameson's use of the model promises. Movement between human and machine, movement which generates the non-human category, is that which takes what is perceived as being the distinctively human quality 'intelligence' and grafts it in to the machine. The animal bits can be ignored. The ideological structure revealed is one which values the brain, the human brain, above all else. This has already been noted both in fiction, with the frequency of severed android heads talking, and in the 'real world' importance of 'brain death'. It can be detected also in the funding of work on artificial intelligence.

The intermingling of human and machine occurs on the right hand side of the square. It does not occur on the left - the construction of the square forbids it, revealing that while the mingling of human and animal may create an abomination, the mingling of human, animal and machine creates that which may not be thought of. Unthinkable not in that it is forbidden, but in that it seems not possible to envisage what the animal would provide that the others could not.

There may also be another way in which the absence of the animal may be instructive. There are many instances in other cultures where animals, animal spirits or animal/human hybrids are perceived to be intermediaries between humans and gods, bringing knowledge from the spirit world. The animal or hybrid provides revelation through knowing more than humans alone can; the animal part enriches the human. In contemporary Western cultures, as revealed in English-language films and TV programmes including those referred to here, the animal demeans. The influence of Judeao-Christian religion is probably still too strong for this to be otherwise, even were it not the case that in the secular world that has succeeded, 'higher' knowledge is seen to be available for access only through the machine.

It was earlier demonstrated that the development of scientific knowledge altered fictions about artificial beings. This was different from the findings in the previous chapters that while fiction was a problem for scientific discourses, 'science' posed none for SF. To see whether this is indeed a reversal

throughout film and television's dealing with artificial beings, I intend now to examine non-fictional coverage of the potential for future artificial beings.

To begin with, the balance shifts, largely with the disappearance of androids. The emphases are on reproductive technology, artificial intelligence and robotics. It was earlier indicated how much of the variation in membership of the category 'artificial human' and the mediation performed by those beings which have left it, is determined by developments in scientific knowledge. The main types of TV programmes in which such knowledge is disseminated and which refer to the role of artificial beings in the future are science programmes, technology magazine programmes, occasionally a not specifically scientific documentary and various political discussions and debates. As always with non-fiction, film is negligible. Current research which, among other far more important consequences may change the fictional status of androids, is quite common now in scientific programmes, if not obviously so.

One area of research that would need to be completed for the creation of artificial humans to be contemplated, is the mapping of the placement and role of human genes. This - the Human Genome Project - is in process at the moment, but certainly is never seriously referred to as contributing to the creation of artificial life. It receives very little televisual coverage at all, being complex and not likely to provide 'good visuals'. A short *Tomorrow's World* item (BBC1 tx. 2 April 1987) announcing the establishment of the international project was reasonably typical of this kind of coverage. It concentrated on the cost (it was pointed out that it will be the most expensive biological research ever, comparable in cost to putting a person on Mars) and provided physical and computer generated models of chromosomes, while stressing further the magnitude of the task. In this is was characteristic of TV coverage of 'big' science.

On those occasions when the style is not the modified celebratory of contemporary prognostications of scientific achievement, it is overwhelmingly concerned with bio-ethics. Ethics may have been late comers to other TV coverage of science and the future, but they have always been significant here. Now they are dominant. This is absolutely in accord with the suggestion earlier in the present chapter that the discourse articulating the roles of artificial humans in film and TV fictions is a moral one - analogous to colonial discourse. The introduction of ethics into scientific discourses necessarily brings into question the ability of those discourses to speak the truth, as well as the recognition that in any case, truths may compete. The Human Genome Project again provides examples with the occasional comment about the

power the information could give to the companies controlling it being countered by reference to its aims of improving people's lives by eliminating inherited disease and disability. The second of these, however, is more commonly to be found in stories not referring specifically to the Project.

The problems standard to examination of non-fiction television programmes about the future, given the constraints of only examining those screened during the research period, remain. Few programmes made more than a year in the past are rebroadcast. This makes attempting to document changes that reflect on fictional artificial beings very difficult. When past programmes are made available, they are framed in such a way as to be rendered rather comic. 'Quaintness' seems to dominate, as contemporary commentators laugh at the naïvety of past prognostications. The *Tomorrow's World* Twenty-first Birthday Special did this, but also went a little further, if only by giving more examples. The main concern with computers was, as would be expected, with domestic applications. The 1967 extract showed the first home computer terminal and suggested that it could perhaps function as a robot housekeeper crossed with a private secretary. The clips from the intervening period referred to fears of automation taking jobs and concluded with a robot attempting to dress a salad, but missing the bowl. The reassurance that people are more clever than robots, even computer operated ones, is consistently re-iterated.

The programme was not at all flippant about microbiology and genetic engineering. No fewer than three times in the ten minute sequence was the telling standard comparison with SF made. The second time was in a reference to concerns over what was happening to 'spare' embryos in the wake of successful IVF. "The prediction of science fiction that scientists would create human beings to order were getting uncomfortably nearer", a voice-over intoned over visuals of red-lit bottles and jars of strange organic growths shot from a level below the lab bench. This comment ignored the earlier extract from 1969 shown excitedly heralding the isolation of the first gene and saying "In the future . . . we may be able to ask for and get the kind of children we want." This tension between the fears of artificially created beings (unspecified) and the joys of babies that would not have existed without advances in reproductive technology, pervades contemporary TV documentary and discussion in the area. The *Tomorrow's World* Twenty-first Birthday Special referred to the potential dangers of genetically tailored micro-organisms escaping and of human genes being inserted into other mammals, but closed what was after all a celebratory programme, with shots

of babies being born underwater and a studio audience member who had appeared as a new born baby on the programme in its first year.

The Special reflected the programme's general position - more time is given to (good) reproductive technology than to (ethically very debatable) genetic engineering. The former provides better visuals, too. Genetic engineering is usually mentioned in the "This Week" section as a quick to-camera summary. It is characteristic of the programme to examine, and usually promote, current scientific and technological developments, rather than to speculate about future ones. With few exceptions, its view of the future is of a time in which these new phenomena are widespread.

Another old programme framed for modern consumption, *Time on Our Hands* (BBC, first transmitted in 1963, reframed 1988), was not principally scientific. Quite atypical in being re-screened in its entirety (with the addition of a modern day studio discussion), it had originally purported to be looking back from a projected 1988 to see how that 'present' had come about. The central presupposition on which the projection was based was the not surprising one for 1963, that automation would give the population increased leisure time which would be a problem to fill. Interestingly, although the programme showed the progressive automation of factories and their becoming eventually computer controlled, the word 'robot' was not used at all. 'Artificial intelligence' was not used either, but the programme did project the introduction of 'cybernetic systems' in the mid 80s which rendered unnecessary the last group of people working long hours - the business executives. These systems were conceived as being able to be smaller than "the whole of Yorkshire" only by virtue of having organic rather than electronic components (the *Demon Seed* premise).

Unsurprisingly there was no other reference to bio-technology, indeed even medicine was only mentioned in passing, with a comment on the "development of regenerative methods of keeping people alive after some organic failure" and a complaint later about the number of senile ninety year-olds who should not have been repeatedly revived.

These two glimpses of areas related to the development of artificial beings serve to emphasise above all how dull the non-fictional programmes were compared to the fictional, and in some ways how much closer the films of super-powerful computers and the like were to what was to come than the more cautious prognostications of serious TV.

Programmes which overtly address questions of the development of artificial beings are far more likely to be about robots and intelligent computers

than about organic life. The *Equinox* programme on artificial intelligence entitled "Anything You Can Do . . ." (C4, tx. 8 October 1987) was typical in addressing the fear that computers would be able to replace humans. To rebut all such suggestions, it had the comedian Stephen Fry challenging and beating a computer on logic guessing games and then teaching it to recognize pictures of animals. At one stage the voice-over commented explicitly that it is a comforting thought that the grey matter that keeps our ears apart is so complex that computers are nowhere near it. There is here both the false man-in-the-street terminology and the characteristic elevation of organic material. There has been little attention on television to molecular computing with its promise of the organic chip. Although the programme mentioned it in passing, it was with the comment that "we don't know how to do it", rather than consideration of what it might imply.

In projecting future developments, phrases like 'a good long way', 'thirty years before we can expect the first stage' and 'at least ten years before they could skip like a five year old' continued to reassure. The programme was framed however by footage from *Metropolis* of the robot Maria walking towards the camera before being disguised under human flesh. This most polysemic of images of the power of science and the force of fictional projection is often used in such situations. During the research period it was incorporated into the title sequence of *Tomorrow's World*.

Another *Equinox* programme, "Pioneers of the Future" (C4 tx. 6 November 1986), looked at some of the notables of Silicon Valley. It emphasised their weirdness (if not their otherness), their optimism for the future and the importance of marketing to their inventions. The most specific relevant prognostication was about domestic robots, where a comment about how people in five years time would be wanting them in terms of their appearance and tactility led on to the 'practical' example of the robotic pet, in development by the establisher of the Atari company. In terms of the earlier references to the position of 'animal' in the semiotic square, and K9's exception to its usual absence, this is quite notable.

A final example of non-fictional programmes about electronically-based artificial beings is provided by one episode of the 1987 BBC fictionalised documentary *Welcome to My World* which explored the world that could eventuate if all the promises of the information revolution were fulfilled. The six-part series, set in the early twenty-first century, considered the impact of widespread dependence on computers and information networks, though not

artificial intelligence. The episode, "The Forgery" dealt with the problems consequent upon the use of computer-generated actors in films. Its concerns echoed both the premise of *Max Headroom* and, to a lesser extent, the present day concerns over 'truth' in digitally-processed news footage. The principal legal issue discussed, whether an actor had a commercial right to control over his actual physical appearance when it appeared televisually, is a link to a major, but only recently discussed issue about artificial beings - patent rights. Because they are both extremely complex and non-visual, these concerns get little more than a brief mention in films and television fictions about the future. They are treated much more extensively in print.

Programmes based on biological sciences approach issues of any relevance to artificial beings only through genetics, reproductive technology and related areas. More often than not they are concerned with developments at the cellular level, and hence appear to have no bearing on visions of the future as grandiose and frightening as artificial people (as was the case with the Human Genome Project, mentioned above). *Eleventh Hour: The Soft Cell* (C4, tx. 11 January 1988), a programme on genetic engineering and reproductive technology concentrated on ethical issues and leavened the serious, worried talking heads with comedy. It was unusual in presenting a predominantly feminist view and in its strong opposition to reproductive technology. There were a couple of comic songs and a sketch in which making babies in the future was presented in much the way programmes and advertisements aimed at housewives about making cakes traditionally are. This could be seen as foregrounding the manufacture of people. The use of comedy in prognostication programmes is quite common, not only to provide variety, but also because it makes it possible to present the future visually without having to be seen to hold specific **serious** ideas of how it will look, without being read as taking SF seriously, and without being disabled by the knowledge that the results of hard work and dedicated thought will inevitably be destined to be deemed 'quaint'. It can convey central concerns quickly too. The advantages of the device are considerable, but it carries with it the risk of trivialising the issues - in this case the dangers attendant on selecting 'desirable' genes for one's childen.

The coverage of reproductive technology on TV is still dominated by the idea of the 'miracle baby' and by the solution of various infertility problems, in the same way that coverage of human genetic research is dominated by producing 'defect-free', 'perfect' babies. Related to this baby-centred climate, is Rosalind Pollack Petchesky's examination of the context in which foetal

images were used on US TV in the abortion debate, particularly in relation to the 'pro-life' video *The Silent Scream.*[52] Ultrasound imagery, central to the video, is now a commonplace in science and medical programmes and Petchesky reminds us how important *2001* was to our familiarity with the isolated foetal image. The frequency of the use of ultrasound images is not only influential on concepts like 'foetal personhood', but also attests once again to the pervasiveness of visualizing technologies. Petchesky's link of the fictional and the non-fictional is the reverse of the ones that have been the predominant concern for this chapter, but is yet another indication of the difficulty of separating the two areas.

The precise combination of *2001* and anti-abortion rhetoric, has also been examined by Zoe Sofia, in the highly complex interconnection of masculinist reproduction, computer technology and outer space which she refers to as "the hyperreal terrain . . . Jupiter Space".[53] Jupiter Space is the area of supposedly only partial exterminism, but one person it certainly disappears is the mother. The linking of exterminism and technological masculinist (re-)production is also made by Jane Caputi through the image of Marshall McLuhan's Mechanical Bride.[54] While this can easily be demonstrated for SF film, it is less clearcut on non-fiction TV. The televisual presentation of reproductive technology points to it however in its tendency to present the mother supine and powerless, marvelling gratefully at the technology and the (male) doctors.

These examples demonstrate the main themes of non-fictional presentations, though one emphasis must be pointed out. All these programmes, except for *Tomorrow's World*, could expect only small audiences. *Welcome to My World*, despite being on BBC1, was screened late on Sunday nights. The position of *Tomorrow's World* then, is disproportionately important, since the programme attracts up to ten million viewers weekly. Having a visibly pregnant presenter, Maggie Philbin, for several months in 1988, did nothing to reduce its generally very positive view of reproductive technology.

The non-fiction programmes remained similar in their attitude to SF to those investigated in Chapter Two. SF was a threat to their ability to claim to

---

[52]Rosalind Pollack Petchesky: "Foetal Images: The Power of Visual Culture in the Politics of Reproduction" in Michelle Stanworth(ed.): *Reproductive Technologies: Gender, Motherhood and Medicine*, Oxford, Polity Press, 1987.

[53]Zoe Sofia: "Exterminating Fetusus: Abortion, Disarmament and the Sexo-semiotics of Extraterrestrialism", *Diacritics*, 14(2), Summer 1984, pp47-59. p48

[54]Caputi: "Seeing Elephants", pp511-2

speak the 'truth' and thus the distancing devices of the SF disclaimer and piecemeal presentation continued. There were two major differences from the treatment of other areas of scientific achievement. The first was the concern to reassure the viewer of the continuing superiority of the human to the computer and the robot. This indicates that the SF preoccupation with the meaning of being human (and the reassurance that superiority is not really achievable by the artificial) is echoed in the non-fiction. The other concern was with the ethical. Although this is to be found in non-fiction programmes dealing with subjects such as eco-catastrophes and nuclear issues, it is more in political and social programmes and less evident in scientific ones.

Despite the continuation of the attempt to keep science and SF separate, this chapter has revealed a more complex interaction of the two domains than has been the case previously. It seems most probable that this is because the 'achievements' of science in the creation of artificial beings are still only partial. The result is, however, that the separation is both ill-achieved and absolutely insisted upon.

One way this is done is by denial. An example of this is the fading of the term 'cyborg' at the time that people with cyborg qualities began to be comparatively common. The term is not used of actual people who have mechanical or electronic body-parts, and furthermore it seems not possible even to refer to them as part-machine. They just 'have' pacemakers or osmotic pumps. This is characteristic of the way in which, using the semiotic square, it was demonstrated that almost total fictionality was required of beings occupying the term identified as 'artificial human'. As they became more scientifically feasible they had to be seen to be either human or machine. 'Real' cyborgs, ones to which Clynes and Kline's definition applied could only be human. Similarly both robots and computers are emphatically machines.

Humanity must be shown as undiluted and superior. In the fictions, apparently superior beings persist in revealing their 'humanity' and hence **our** superiority, since we are what they aspire to. In the non-fictions, robots, even computer controlled ones, are repeatedly shown to fail at what are simple tasks for people (and their superiority at calculation, for example, is no longer noteworthy). The insistence on keeping the human undiluted can be seen in the non-fictions in the way the only possible justification for intermingling the categories human/machine or human/animal (by inserting human genes in animal cells - no one can suggest the reverse except in the context of

opposition and scare-mongering) is for there to be guaranteed human medical benefit (and commercial profit). The benefit then functions to make the recipient more 'human', since less flawed or ill. The British patented sheep used to produce human blood clotting factor is an example both of this and of a possible actual artificial being. As a patented animal it surely cannot be regarded as natural, but this is not a suggestion made publically.

What it all reveals is a continued bias against the autoplastic, not through avoiding, but through denying it. The autoplastic adaption of the body to the environment carries with it the aura of the superstitious, the magical and the primitive, the abandonment of which Benjamin noted in the age of mechanical reproduction. The developed, alloplastic way is to adapt the environment. For the autoplastic to be accepted it must be contained within a strongly scientific, developed, non-magical context and contemporary hi-tech medicine unquestionably provides that. It must, furthermore be in the cause of actualizing a person's human potential as with the aids to longevity and the emphasis on transcending infertility. The human remains purely human.

Use of the semiotic square revealed that androids and some beings termed cyborgs remained still so thoroughly fictional that they could continue to be shown as artificial beings, compounds of human and machine. They could attempt to achieve what is termed humanity and what is, of course, only those characteristics of which we are most fond. Analogy with colonial discourse proved a better analytic tool than the hyperreal and showed how the imaginative fictional exploration of what it meant to be human was modulated by the need to relate to artificial humans. Artificial humans were revealed as inferior in very similar ways to those used to imply the inferiority of colonial subjects - they are homogenized, they exist on the margins, are required to be observably different and exhibit both excessive sexuality and childlike innocence. This last is at times evidence of the most important shared characteristic - their hybridity. They are both human and machine, civilizable and uncivilizable, rational and incomprehensible - all factors which combine to point to their unpredictability, which means that they require control by their superiors.

While the analogy with colonial discourse proved very fruitful, that with anti-colonial discourse appeared less so. Political consciousness was rarely exhibited by the artificial, this was a characteristic of the human. So great is the concern with the meaning of being human and the need to distinguish between 'real' and artificial humans, that gender difference becomes secondary. There are few artificial women and many of those that do exist

appear androgynous.

The hybridity which marks the artificial human is perhaps more widely descriptive of the whole treatment of the area of artificial beings, both fictional and non-fictional, for it is hybridity which is so often denied. Only the very fictional are hybrid. Actual people who are part machine are never described so; technological intervention is only allowed to make people more human. What it means to be human is still to be untainted by the machine. That there are obvious problems in this and in the perception that being human requires 'natural' (as opposed to artificial) creation is evident in the occasional appearance of the rather hybrid discourse of bio-ethics. While scientific discourse still generally has the best claim to speak the 'truth' about the future in this area, the primacy of scientific discourse can be overtly called into question when ethical issues within science are discussed on popular television.

CONCLUSION

So how is the future talked about overtly in film and TV programmes and in what ways can truth claims be made? Following Foucault's arguments about regimes of truth, its political economy and most particularly the role of science in it, the study looked at a number of types of statement about the future located to varying extents within scientific discourse. Again and again, the power of science to speak about the future was seen to be limited, often by the very characteristics that made it science in the first place. Foucault's statement that concepts need to be 'purified' of metaphors and imaginary content for them to function as scientific concepts[1] seems to be at the heart of this, for the distinction between fact and fiction is hard to maintain when arguably the most basic aspect of the future is that it is unknown. Such purification of science is not, in any case, a particularly feasible project within popular scientific discourse (and virtually all science in film and TV material is this), as was demonstrated by the need for metaphors to explain scientific concepts in non-professional language. It seems that 'impurities' inevitably erupt in any attempt at a sustained vision of the future, perhaps because treatment for longer than a few minutes makes the narrative component of coverage obvious. Unless the visuals are mathematically based, they too have a high potential to evoke narrative and imaginative aspects.

The apparently peculiar case of the naming of Star Wars/SDI with which this study began has been shown to be not all that exceptional after all. It remains unusual in the clarity with which the shifts between fiction and non-fiction, scientific and science fictional discourse can be traced, but the intermingling of terms and the tenacity with which those speaking from a scientifically-validated base kept rejecting the SF name is characteristic of much talking about the future.

Even given the necessary existence of metaphors like 'the Greenhouse Effect', and the narratives that develop in their wake, there are still many aspects of the future about which scientific discourse must keep comparatively silent because the imaginary content is too high. The prospects for artificial beings is a particularly strong example, since televisual discussion would seem to require accompanying visuals and these are either so abstract as not to appear to have bearing on the issue or appear derived from SF. SF

[1] Foucault: *Archaeology*, p190

operates in these areas at least in part by virtue of its illegitimate claim on science's truth. It can talk about the same areas and in some of the same ways, but with fewer restrictions. Overt claims to speak the truth about the future are not made, however, and the almost ritual castigation of SF for its fanciful visions can be easily evoked to deny SF assertions any legitimacy if it is thought that this is being attempted. The serious attacks on fictions for daring to claim to speak the truth are made on fictions that are not marked as SF and hence cannot have their legitimacy so easily rejected. Nuclear dramas on TV are the most obvious examples of this and the development of framing such programmes with political discussion, a form of framing that asserted and re-asserted their fictionality, was noted.

Neither the distinction between fiction and non-fiction nor the policing of the boundaries between them is as important when the setting is the present. When it is the future, the determination to separate the two and to deny fiction any possibility of speaking the truth can be viewed as an attempt to prevent obvious 'impurities' destabilising the more truthful, scientific modes of speaking, or even of drawing attention to their dubious character. Yet impure or not, statements about the future have the potential to undermine the force of scientific discourse. When the projected future is reached and the prognostications shown to be erroneous or even laughable, the claims of the method of projection to speak the truth are shaken. Showing scientific and predictive techniques of the past as 'quaint' and unsophisticated is a major device in the containment of this danger. SF rarely asserts its role as prognosticator (though its writers, critics and fans gladly proclaim instances when it has appeared accurate), but blaming it for 'failures' and fantasies is in part an attempt to displace potential blame or contamination from 'true' science. Fiction here must be shown to be very different and very trivial.

Whether discussing the future or not, televised science still asserts its greater claim to certainty, credibility and truth. Jean-François Lyotard's description of the unequal contest between narrative and scientific knowledge was referred to in Chapter 2. He points out how narrative knowledge happily accepts the scientific as a discursive variant, but scientists see narratives as a primitive and underdeveloped form because they are not subject to proof.[2] Repeatedly throughout this study this has been shown to be a strong feature of talking about the future. Even when science is shown within fictions, as for example in *Star Treks II* and *III*, it is still surrounded with indications of certainty, rationality and separation from politics, which are less and less

[2]Lyotard: *The Postmodern Condition*, p27

attainable by 'real world' science.

The difficulties of maintaining the separation of scientific and narrative knowledge is well exemplified by the Star Wars/SDI case. The complexities of the connotations of 'Star Wars' enabled it to be used popularly in a diversity of ways that escaped the rigid control of scientific language and spoke more strongly of the hopes that were embodied in the proposal. The scientific term, on the other hand, could speak more accurately of its potential. The case was a specific example of the frequently noted more general use of the dismissive/recuperative "this may look like science fiction, but . . ." formulation which acknowledged popular beliefs only to channel them to the world of scientific or political practicalities.

In most instances there is no reverse effect - science is an important and necessary component of SF, even more than in the way Lyotard envisaged. Chapter 6 noted how developments in scientific knowledge modulated the presentation of artificial beings in fiction, reducing the prominence and the range of possible roles of intelligent robots, computers and cyborgs, especially the latter, as their scientific credibilty increased. The total refusal to use the term 'cyborg' for extant mechanically-augmented human beings may be regarded as the scientific world's response to this. Just as science should be untainted by the fictional, so should humans be kept undiluted and their mechanical components deemed incidental to their status.

As well as the tension between scientific and narrative knowledge which results from the unequal response to each other's status and ability to speak the truth, a future setting appears to exacerbate the problem of convergence of categories. The temporal location in the unknown seems to incite great efforts to keep the categories distinct, while also ensuring that **proof**, the ultimate test of the scientific, the very basis of the distinction, is unavailable. In this indistinct and grey area, other discourses - moral, political and economic - attempt to co-opt the scientific for its credibility but also, though in a more subdued way, attempt to exploit the overtly narrative, including the fictional, for its affective potential and popular appeal.

Such co-option is not the only way in which non-scientific discourses can speak about the future. When SF has been dominant in a particular area, as was the case for space, fiction may appear so powerful, that when science is unable to fulfil expectations aroused by the fictions, it is unable to continue to provide the primary truth-speaking discourse, leaving the field open to another discourse, in this case, economics. Whether the same will happen with artificial beings is as yet uncertain. While ethics, speaking morality rather than

truth, plays a significant role at present, economics is already evident in patent rights and copyright on information gained by the Human Genome Project.

The Human Genome Project provides a useful example of contemporary scientific activity directed to the future with which to conclude this section on discursive contestation for dominance in talking about the future. It is an attempt to gain complete knowledge - **all** chromosomes, **all** genetic information - and one of its aims is to improve people's lives by eliminating inherited birth defects.[3] The discoveries can be represented in the most abstract way - in graphics resembling bar codes - yet it is the local narratives, like the sufferings of families with hereditary illnesses and the moral issues involved, rather than the grand scientific ones, that most commonly appear on TV. The stories however are usually presented at length separately from studies of the Project, which mention individual suffering or moral quandaries chiefly as abstract possibilities. Nonetheless, the ultimate indivisibility of contemporary scientific and other discourses is exemplified here. The moral and economic questions about the ownership of, and access to, the information, the patent rights and the resurgence under other names of eugenic thought, if not yet practices, are probably the most urgent issues, but these are difficult for compartmentalized televisual science to treat. It is here perhaps that fictions of artificial beings could imaginatively illuminate and diversify discussion of this scientific field, but as yet the convergence of scientific knowledge, however narrativized, and fiction, has not occurred, as it has for nuclear and space concerns. There has as yet been no attempt to collapse discursive boundaries by, for example, calling on the hyperreal; Rutger Hauer most emphatically does not recreate his replicant persona to sell the merits of genetic fingerprinting. The science concerned is abstruse and the discursive boundaries so firmly observed, that the Project receives little popular discussion.

The study has identified a few pervasive devices used in depicting the future which are techniques for minimising, or managing, fictionality. The one most evident in the present study has been termed the rule of minimal variation, and applies both to fiction and non-fiction. It reads as follows: the less the variation from the present, the greater the credibility of the representation. It often operates through another device, piecemeal presentation, which refers to the practice whereby even if a number of

[3]Susan Watts: "Making Sense of the Genome's Secrets", *New Scientist*, V. 127, No. 1728, 4 August 1990, pp37-41. p37

changes are envisaged, they are introduced only individually and are never shown operating together. This was seen strongly in the analysis of the *Tomorrow's World* programme on the Greenhouse Effect in Chapter 2, where the projection of changes in climate disregarded any consequent **or** concurrent other changes which would have had the effect of reducing the difference from the present and hence minimising the risk of appearing excessive or 'science fictional'. In fiction it can be seen in the earth-based sections of space dramas, especially TV ones like *Star Cops*, and many of the artificial humans films, like *Robocop,* which represent the future as differing from the present only in the intensification of one element - public disorder - fashions, artefacts, music styles and institutions other than law and order ones remain as they are (represented) today. As well as enhancing credibility, it also reduces cost (which may be why they are particularly evident in TV fictions).

The minimal variation 'rule' has increased in its applicability during the thirty year research period. For example, in the 60s it was not uncommon for documentaries and even science programmes to present people of the future wearing 'futuristic' dress; now the practice has been virtually abandoned. Although the weather forecaster in the *Tomorrow's World* special purported to be speaking from the next century, he wore the clothes of today. Even SF films and TV programmes are now restrained. *Aliens* has men's suit collars worn up rather than folded down as its only gesture to a sartorially different future; *Blade Runner* pastiches the fashions of the present and the 40s; almost every astronaut wears overalls. In some instances there is not even minimal differentiation - *First Born* projects at least eighteen years into the future yet shows **no** change at all. Nor does *Making Mr. Right*, though the science of this no different future can produce artificial humans and sustain deep space research.

Another very common technique to manage fictionality, but not one that can be phrased as a rule, is the use of television itself as a validator. This is almost certainly linked to the rule of minimal variation, since the fictional TV news, information programmes and advertisements are created and deployed as providers of information about the posited future in an analagous way to that in which we gain information from current 'real' ones. The TV weather forecast in the *Tomorrow's World* Greenhouse Effect special is one example from science programming; there were also a number of 'news' clips in *Welcome to My World*, the series on the future of information technology. Within films, a news programme watched in a bar at the start of *Alien Nation*,

for example, provided background information on the arrival, 'nature' and political position of the film's alien humanoids. In *Robocop*, news programmes, games shows and commercials provided information both relevant to the plot and incidental to it. Sometimes the material was incorporated naturalistically by having people watching a set, but sometimes it was just cut in without diegetic motivation. The previous practice of voice-overs and scrolling print, evident at the beginnings of films like *Star Wars* and *Escape from New York*, has not been totally replaced by the device, but the most notable recent use of it was in *The Running Man*, the plot of which was concerned with the falsification of TV news.

This is one of the two kinds of incorporation of the medium (or related media) within itself that Garrett Stewart has referred to as the 'videology' of SF. He describes the device just outlined as

> "nested instances of present visual science within a visual medium that serve as confirming frames of reference".[4]

Non-SF use of this device is a telling example of the convergence of the various fields of concern and of the place of television itself in current regimes of truth.

A further technique which manages fictionality, but arguably in a more complex way than those just referred to, has been noted several times in the course of this study. This is the deployment in non-fiction programmes and articles, especially scientific ones, of 'the science fiction disclaimer': "this may look like science fiction, but . . .". It is odd in that it acts both to enforce and to collapse the fiction: non-fiction distinction, since it emphasises the outrageous claims of SF gadgetry or presuppositions, only then to announce that the artefact or concept has achieved 'real world' actuality. It feeds the 'can-do' mentality since its general use is in the context of technological achievement. While usually serving as a trivialising device (it is unlikely to introduce an

[4]Garrett Stewart: "The 'Videology' of Science Fiction" in George Slusser and Eric S. Rabkin (eds.): *Shadows of the Magic Lamp*, Carbondale, Southern Illinois University Press, 1985. pp206-7. The other kind he describes as

> "those imagined electronic marvels of specifically visual functions that are the very lodestones of prophesied science in any film of our scientific posterity."

as for example the beings in *Tron* and *THX-1178*, or the imaging device which sees round corners in photographs in *Blade Runner.*

AIDS vaccine item, though it might be for a novel system of delivering it), it prepares the way for SF to be regarded as a site for try-outs for the 'real world'.

All these techniques can be seen to be premised on an acknowledgement of the inadequacy of the distinction between fiction and non-fiction when the future is being talked about. They either minimise the fictional aspects by reducing their presence as much as possible, contain them within marked-off segments such as internally registered TV programmes or manage them by overt recognition of the different statuses of non-fiction and SF.

There is an area of exception to this pattern of the dominance of the scientific, the intermingling of scientific and science fictional discourses and the potential for another discourse to challenge for dominance if SF has appeared to 'define' an area. It has been referred to in most of the chapters, but was treated there slightly differently and only as a minor concern. I intend now to pull this scattered material together and examine it as an alternative, or possibly even a denied, way for film and TV to talk about the future. The area of exception has been referred to briefly in Chapter 2, it is 'the personal mode'.

The 'personal' refers to that way of talking about the future in everyday life in which we consider what might happen in years to come to ourselves, our families and those we know. It thus deals primarily with families, children, reproduction, sexuality and death. In the personal mode, the future is considered ordinarily, in terms such as marriage or partnership plans, hopes for one's family or worries about becoming old and dying. To varying extents, these can be subjects of scientific, or economic, discourse. The way in which the future can be talked about in personal terms rather than in these discourses does not appear to have the requisite unity through its systems of dispersion for it to be termed a discourse, hence the choice of the term 'mode' to indicate this manner of talking. While I am aware that people do draw on film and TV references in envisaging their personal future, evidence of the personal mode's interaction with and independence from mass mediated material and the operation of what I earlier termed 'popular foresight' could only be examined directly through an audience study, and that is not attempted here.

Nonetheless, while the personal mode cannot be examined directly here, evidence within film and TV pointing to its significance can be detected. This part of the conclusion will draw together indicative material from the preceding

chapters, looking at how the relevant and interlinked areas of children, the family, reproduction, sexuality/erotics and death are talked about. As ever the splits between fiction and non-fiction are noteworthy. The personal is usually considered inimical to scientific non-fiction, but it may enter with metaphor, as was noted in Chapter 2 where the use of the phrase 'generations to come' to indicate future observers can be seen to point almost directly to the personal mode.

Televised science more usually considers the relevant areas in medical programmes, especially in regard to reproductive technology, but also to life-prolonging practices. Both these areas are also the subject of ethical and economic discourses. Discussion of neither of the areas commonly involves much projection into the future, but concentrates chiefly on what has (just) become possible. There is occasionally reference to current research which it is hoped will bring about future cures of diseases which are now fatal, or to possible new techniques to combat infertility, but both are likely to be cast in such a cautious frame that they barely seem to refer to the future at all. It is possible that this is another example of restraint caused by fear of science fictionality, but there may be other factors at work too. Speculation about possible cures is likely to avoided also on the basis of its not being felt proper to raise sufferers' hopes without a sound basis for doing so. It also appears to be the case that televised science programmes avoid discussing personal death anyway - it can be seen as a signal of the failure of science, or as the concern of some other discourse, like religion.

The other main relevant form scientific discourse on personal matters in the future may take is demographic. This is far from the personal mode which usually operates through the most local of narratives. Even when the raw material may seem similar (discussions of desired family size, for example), practices like demographic modelling, computer-based forecasting and opinion polling all promote the hard, numerical, statistical bases of their prognostication and minimise any affective component.

It is even more common for the personal to be absent or repressed. The single reference to a child in non-fiction TV programmes talking about space was noted in Chapter 4, as was the anomalous status of its speaker - a female medical specialist. Repression is most evident in the inability of technostrategic discourse to speak of people and in the phallocentric language it deploys instead. In Chapter 3, the centrality of families and children in dramas of nuclear detonation and its aftermath was noted. They

were not however the focus of the controversy the dramas generated, which concentrated rather on the drama's 'usurpation' of the primacy of science in making truth claims. Truth claims are not presumably relevant to the personal. Indeed the least controversial drama, *Testament*, was seen to focus almost entirely on the family and on death. Yet the dismissal of this and to a lesser extent *The Day After*, as well as the derogatory comments about the ending of *Threads*, all of which call on terms like 'melodramatic', indicate again that the personal is incompatible with scientific discourse. Fiction is not the only threat to the ability of scientific discourse to speak truthfully about the future, the personal is too. Yet the representation of families and children in nuclear TV dramas is not really evidence of the personal mode, for the future for these people is one in which the personal mode is itself refuted. It is one in which they all die.

In more general ways, the personal may be seen also to be a problem for virtually all fictions of the future. In the other nuclear fictions, the post-holocaust fantasies, there are often child mutants, or difficulties in conceiving children, again indicating problems for continuation of the species. (As do the overwhelmingly male worlds of such fictions generally and the eventual fate of the girl in *A Boy and His Dog*.) The antipodean examples present some exceptions to the sub-genre's overt exclusion of the familial and denial thereby of even indirect long-term consideration of the future through a personal mode. Children and families are at times quite central to *Mad Max II* and *III*, though Max himself continues celibate. The same, except that the hero is not quite as celibate, applies to *Battletruck*, while *The Quiet Earth* plays with the generic cliché which calls for the two surviving males to fight for possession of the remaining woman, but eventually presents an amicable, erotic arrangement.

As has been indicated, even depicting children and families is rare in most films and TV fictions with a future setting. This is not a necessary characteristic of SF, since they are common in films set in the present, for example *E.T.: the Extra Terrestrial*. Only TV dramas set in the future which are screened in children's time (like *Dr. Who*) normally have a child in the cast. The full family of mother, father and three children in the early American TV series *Lost in Space* is most unusual. Where children do exist, they are almost always peripheral, and accompanied (if at all) by no more than one parent.[5] In other words, children, who are commonly used to figure the

[5]SF films are by no means unusual in this though they do seem extreme. The only exception to the absolute absence of a two biological parent human family in the films considered

future in films with more conventional settings, are not used in this way in future-set SF. The two films where they appear to figure hyper-conventionally as symbols of hope for the future - *2001* with the final Starchild foetus and *Enemy Mine* where the fostering of the alien child by the human 'uncle' reconciles two warring empires - provide a very different basis for hope, for these are both 'unnatural' progeny.

In this, however, they may be more typical, indeed they may even be indicative of the indirect evidence of the personal mode in films and TV programmes of the future. There has already been reference to suggestions that the SF genre is itself figured by a distaste for biology and sexuality, especially for their conjunction in the reproductive woman. Zoe Sofia pays particular attention to the Starchild figure in this regard (as was noted in Chapter 6). Sofia observes how exterminism, extraterrestrial fantasies like *2001* and *Alien*, and the cult of foetal personhood all collapse the future into the present (the embryo does not become a person, it always already **was** a person; current generations would do well to consider themselves also the future generation since there may be no other).[6] Throughout this, her concentration is on SF's promulgation of masculinist (re-) production where women are no longer necessary. In this she is in accord with Vivian Sobchack's previously quoted comment on the SF genre's main unconscious problem being a desire to escape from biological dependence on women. As Sobchack further says,

> "sex and women and the significant connection between them is denied but a ghostly presence in the genre. It is as if such a potent semiotic relationship poses a threat to the cool reason and male camaraderie necessary to the conquest of space, the defeat of mutant monsters and alien invasions, and the corporate development of science and technology".[7]

This denial, which stresses the link of masculinity and science, makes the personal mode with its concentration on families a very awkward one for SF. There are many more examples of masculinist (re-) production than Sofia cites. The first three *Star Trek* films all produce 'unnatural' life - a cyborg, a once barren, suddenly verdant planet and a cloned Spock. Together with the

here is *Outland* where the mother and child are sent away at the beginning.

[6]Zoe Sofia: "Exterminating Fetuses", passim

[7]Vivian Sobchack: "Virginity of Astronauts", p41

child in *Enemy Mine* born of a hermaphroditic alien played by a male actor, they make concrete Sobchack's point that the repressed women and sexuality in SF films return as imagery frequently displaced onto space exploration or an alien,[8] although her examples are not benign as this is.

Sobchack's analysis initially appears contradicted where it overlaps with Barbara Creed's thesis that the hybrid SF-horror film is particularly concerned with the maternal body, and

> "is using the body of woman . . . as a metaphor for the uncertainty of the future - the new, unknown, potentially creative and potentially destructive future".[9]

Creed notes the traditional concern of SF film with 'new modes of conception and procreation' (though without detailing that 'new' usually means without women), and adds

> "[i]n more recent years, as experiments with reproductive technology have begun to make enormous headway, the sci-fi horror film has become increasingly preoccupied with alternative forms of the conception-gestation-birth process".[10]

The difference between Creed and Sobchack is basically generic; Creed writes mainly of the horror film, Sobchack of SF. Neither writer concentrates on the future; both focus on genre. The two analyses both consider *Alien*, which, with its sequel, is at the centre of feminist studies of SF, and is also particularly important for my current concern with the personal. Sobchack concentrates on sexless 'virginal' astronauts and Creed on the monstrous phallic mother of the alien.[11] In fact, Creed's detailed presentation of the role of imagery based on the reproductive female body[12] provides an elaboration of Sobchack's comment on the repressed. When examined more closely, the

[8]Ibid., p50

[9]Barbara Creed: "From Here to Modernity: Feminism and Postmodernism", *Screen*, 28(2), Spring 1987, pp47-67. p56

[10]Ibid., p57

[11]Barbara Creed: "Horror and the Monstrous-Feminine: An Imaginary Abjection", *Screen*, 27(1), Jan-Feb 1986, pp44-70. Reprinted in James Donald (ed.): *Fantasy and the Cinema*, London, BFI Publishing, 1989.

[12]Creed: "From Here to Modernity", Section III

distinction between Creed and Sobchack is quite slight, because both point to the same thing - the unavoidable presence of the repressed feminine. This is also central to my assertions about the indirect evidence of the importance of the personal mode. Even when those figures through which the personal can be detected are repressed within films and TV programmes, they contrive to make their presence felt. For Sobchack, women and sexuality are repressed into imagery or displaced from the genitalia to the head.[13] (This is most apparently the case with all the decapitated androids and, although it is Creed's example, the alien 'insemination' scene in *Alien.*)

Aliens is a particularly important film to consider, because of the presence of a child and a mother (albeit an alien one) at its centre. Constance Penley has argued that SF can examine the nature of sexual difference by displacing it onto, or compounding it with, other differences. However, she asserts that while *Alien* is a "stunningly egalitarian" film, *Aliens*

> "cracks under the strain of trying to keep to the very original *lack* of sexual differentiation in its precursor".[14] [emphasis in original]

The 'crack', described as if it were a betrayal, is the development by Ripley of a maternal instinct, evidenced in her determination to save the child, Newt. Creed's analysis is similar in this regard. This is a persuasive reading, which if valid points to a place for the personal, but it underestimates the extent to which Ripley in her role as hero, as much if not more than as a female, **must** act to rescue the child (would John Wayne in a similar case not have done just the same?). To argue, as Penley does, that Hicks, the marine lieutenant, does not act similarly because it is not required of the masculine, is to ignore the coding of him as weak. Bishop, the positively coded male android, does participate in Newt's rescue. Penley is able to maintain her argument in part because she subsumes all difference under sexual difference and discounts the peculiarities introduced by male (re-) production and artificial beings.

Androids, the very creatures of non-monstrous male birth, cannot be discounted. Their sexuality is separated absolutely from reproduction and is most customarily at the disposal of the human. The sexuality of female androids is usually highlighted, but until very recently male androids have been barely differentiated from robots in their asexuality. Films like *Android* and *Making Mr. Right*, have tended to present them instead as potentially

[13]Sobchack: "Virginity of Astronauts", pp112-113

[14]Penley: *Future of An Illusion*, p133

sexual beings, childlike in their innocence but possessed of mature bodies in need of sexual awakening (which they of course receive). The effect then is to create a new (male) sexual Other. The maternal is abolished and families become oddities as androids are 'born' adult. The replicants' possession of family photographs in *Blade Runner* is the sign of a lie as well as a lack.

Mary Ann Doane argues for a more complex perception of technological reproduction in SF film. She identifies a male desire to "appropriate the maternal function"[15] in *Metropolis*, where it is narratively thwarted, but then concentrates on *Alien(s)* and *Blade Runner*. In the later films, and in the light of 'real world' developments in technological reproduction, she notes how the maternal category is extended to include artificial creation.[16] So far from commenting on male appropriation, she observes the "terror of motherless reproduction". She ignores the fact that this terror is not evinced by the creators, but only by the created and women. At the beginning of *Blade Runner* the replicant Leon kills the man who asks about his mother, and Ripley is bigotted about the artificial in both *Alien* films.

A consolidated outline of *Aliens* will demonstrate the repression of biology and the ultimate irrepressibility of the woman's body, though Creed's comments about the film's self-conscious and funny playing with gender roles[17] must be borne in mind. Sobchack's analyses precede the release of the film, which challenges her general comment on sex and women in SF films, quoted earlier, as all the classic preoccupations of SF she lists - the conquest of space, alien monsters and corporations developing science and technology - are subsumed under the determination of a female hero to save a child. Yet sex is minimal and the child is not her own. 'Unnatural' production of androids, aliens and habitable planets is central. Ripley succeeds against the monstrous alien mother by becoming mechanically augmented - certainly in Haraway's terms, a cyborg. The child is only saved with the intervention of a male android. It is possible to read this film as an attempt to reconcile the repressed feminine and male (re-)production through Ripley's embracing of technology and her own destructive as well as mothering powers. Yet even so, it does not provide a conduit to the personal mode of representing the future; the film ends with the survivors entering yet another hibernation of

[15]Mary Ann Doane: "Technophilia: Technology, Representation and the Feminine" in Mary Jacobus, Evelyn Fox Keller, Sally Shuttleworth (eds.): *Body/Politics: Women and the Discourses of Science*, London, Routledge, 1990. p168

[16]Ibid., p169

[17]Creed: "From Here to Modernity", p65

uncertain duration.

Such hibernation is indeed a 'little death'. Most of the films dealt with share a considerable concentration on, even a setting in, death. This is not an area linked to the personal mode which the fictions repress. Death dominates almost all but the juvenilia, either directly in that the great majority of the characters are killed, or indirectly through hibernation, the inadequate number of represented women or the presumably sterile matings with androids. Technological reproduction both ensures and overcomes death, as technological (rather than divine) exterminism overtakes the cycle of personal reproduction and individual death.

This applies in other than ostensibly fictional programmes too. It is presumably unsurprising given that the least arguable characteristic of the future is that it is the site of our individual deaths, but as was mentioned earlier, personal death is rarely dealt with in science programmes. Environmental disasters and nuclear war, however, both introduce the possibility that death may not merely be individual, but total. In such a case there would be no place for the personal mode, in films, TV programmes or in everyday life.

AIDS provides a final example here, not only of the link of sexuality, death and the future, but also of a reversal of the personal mode of thinking about the future. In Chapter 2 the belief of Arthur and Marilouise Kroker that history became the reality principal as people learnt to live under the threat of their sexual past was quoted.[18] Death in the future coming from sex in the past may seem a strong example of the conflation of time, but would have been unsurprising to a Victorian worried about syphilis (or indeed to any number of pregnant women). Nonetheless it represents a change in the way the future has been talked about in the period of my study that compounds the absence of the personal.

It is possible to see from all this that the personal mode can be detected even indirectly only with great difficulty in films and TV programmes which talk about the future. It seems most probable that this is because, particularly in its affective content, it is in conflict with scientific discourse. Indications of the personal are not merely absent, they are also repressed. That science is imbricated in this repression is evident from its being most readily detected in the concern with technological reproduction. In the non-fiction, biological parents are incidental, the focus is on the doctors and the technology. In the fictions, women and children are rare, reproductive women missing, but

[18]Arthur and Marilouise Kroker: "Panic Sex", p14

creation continues - artificially. Of the indicators of the personal, only death figures largely (though not in personal terms in the science programmes) but it carries with it, in the threat of exterminism, a total end to the personal future.

With few exceptions, the tone with which the future is talked about is pessimistic. Generally speaking, the future is shown as looking bad. Furthermore, the more recently the future is talked about, the worse it seems. In part this may indicate doubts about the sheer possibility of the future itself, either due to a nuclear or an ecological catastrophe or as a consequence of AIDS. As was pointed out in Chapter 2, Susan Sontag's analysis of the AIDS epidemic links it with the other catastrophes as part of the "long-running serial" of Apocalypse - the disaster that we know about but which does not yet seem quite to have happened. She comments on a double bifurcation; there is now not just the event and its image, but also the event and its projection.

> "But in fact the look into the future, which was once tied to a vision of linear progress, has, with more knowledge at our disposal than anyone could have dreamed, turned again and again into a vision of disaster."[19]

As we wait then for these 'known' disasters to be realized, it is unsurprising that perhaps the bulk of fictions of the future shows it to be worse than the present. The eco-catastrophes and all but the averted war tales of the nuclear stories, as well as most of the space and artificial being fictions, show a future which, for all but the privileged very few, is less pleasant than now. There is even something of a consensus pessimistic view: unless a disaster is posited to have reduced the population, the future is heavily polluted and crowded with the marginalised poor, who are controllable only by force and are usually also geographically restricted. This is the scenario at the heart of contemporary bad futures.

Many depictions of the future could not actually be described as presenting the future as better or worse than the present, since they present the future as much the same as now. Despite this, they can probably also be regarded as pessimistic because the present is itself viewed pessimistically. Most of the space stories seem to be of this kind, as are those about artificial humans. Current problems of corporate unaccountability and corruption, for example, are projected forward, or discriminatory practices simply given a greater range of beings to operate upon. In these films the present and the

[19]Susan Sontag: "AIDS and its Metaphors", p98

future collapse onto each other.

Almost all the exceptions to pessimism are those constrained to varying extents by past visions of the future. The strongest example of this is *Star Trek*, constrained by its late 60's genesis, the derivatives of which continue to present an optimistic view of the future. A similar process was also noted in *Flash Gordon*, *Buck Rogers in the 25th Century* and, to a much lesser extent, *2010*. The initial Star Wars vision of a defensive shield that would make nuclear attack on the US impossible was also a view of a better future influenced by a nostalgic element. The Star Wars name could be used positively of the proposal largely because the nostalgic aura of the film fitted (however improbably) the idea of pre-nuclear invulnerability. The current plan, for the protection of missile silos, has little evidence of optimism.

Nor is the pessimistic view restricted to fiction. Science itself no longer offers the hope it seemed to, for instance in the 60s. Probably the best it proposes is the alleviation in the future of some of the problems of the present - many of which, like the Greenhouse Effect and other environmental disasters, it is seen to have brought about in the first place. Medicine, the science most easily perceived as beneficial, is symptomatic here, as it becomes necessary to deal with iatrogenic diseases.

The failures of science are publicized more than once was the case, together with their probable future consequences. There is no longer an expectation that scientific 'progress' is without commensurate drawbacks. The can-do mentality which once assumed that technological solutions were sure to be developed eventually (the mentality which embraced Star Wars/SDI and postponed worrying about nuclear waste disposal) seems no longer so secure. It can be seen as part of the asserted end of the Enlightenment Project and the crisis of legitimation (outlined by Jean-François Lyotard), as it becomes obvious that there is no longer any certainty that human emancipation will be the result of increases in scientific knowledge.[20] It is a very basic part of the loss of influence of the idea of progress as a meta-narrative. Progress can no longer be underwritten by science, and postmodern science itself seems to be

> "theorising its own evolution as discontinuous, catastrophic, nonratifiable and paradoxical".[21]

---

[20]Lyotard: *The Postmodern Condition*

[21]Ibid., p60

This kind of science should not be as threatened by fiction, even science fiction, yet this is the kind of science still little evident in the popular discourses considered here.

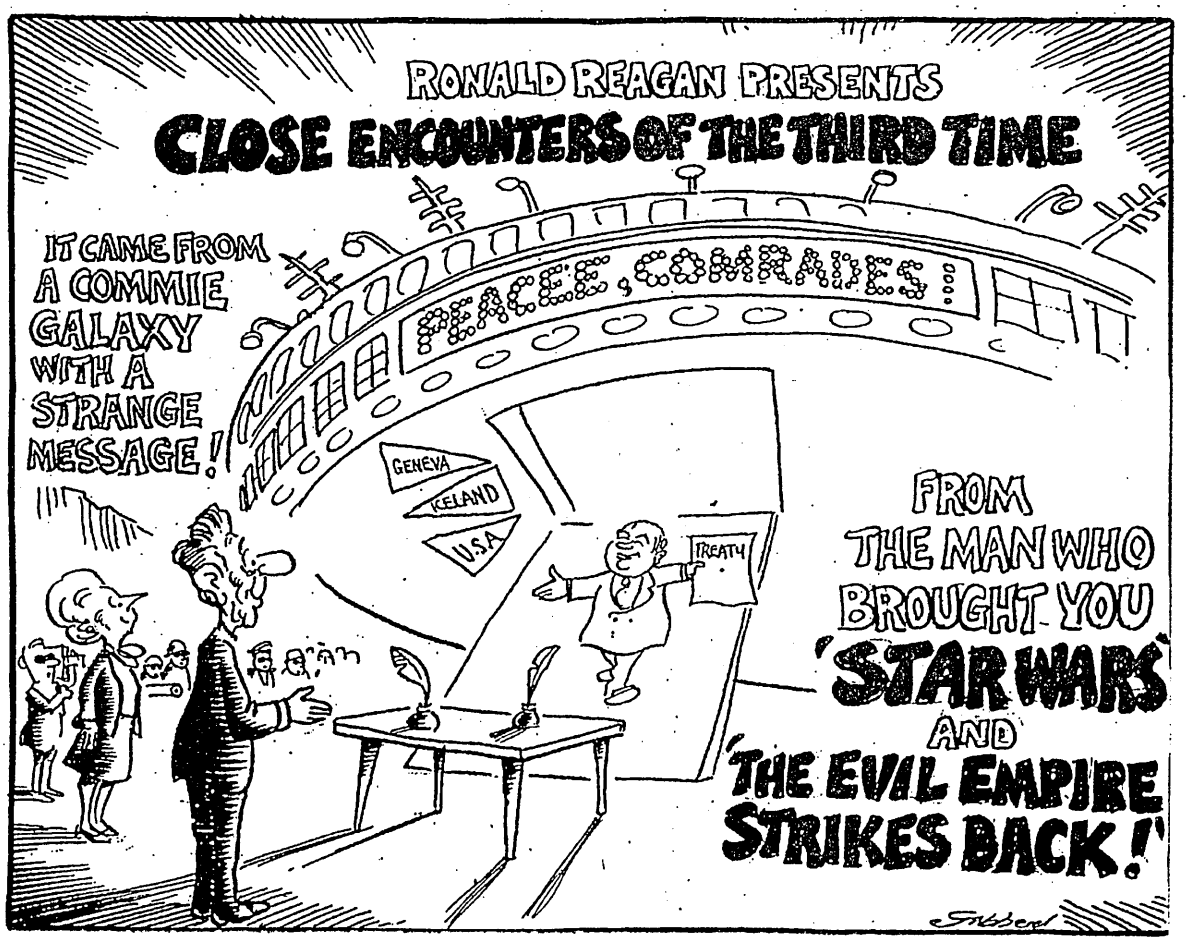
The way the future is talked about in popular discourses is characterised by a kind of hybridity, similar to that noted in Chapter 6 as typical of the depiction of artificial beings, especially as their scientific plausibility increased. There are many occasions throughout this study where it can be found: it has been difficult or impossible to separate fiction and non-fiction satisfactorily; scientific discourse has refused to be 'purified'; economic concerns have usurped science's prominence; and the prime fictional mode has been SF, the very name of which is hybrid. Because the future is unknown, or not yet know, if it is to be talked about with any possibility of a claim to do so 'truthfully', it can only be done in a hybrid way. Fiction, acknowledged or not, **will** be present. Proof will only be available in the present, so science will inevitably be impure. This matters more in popular than in professional discourses, but in dealing with film and TV as here, it is popular discourse that is relevant. Visual material is particularly problematic. Sustained visuals showing the future, if they are not to be completely fantastic, can only be hybrids, combinations of 'talking heads' speculating, mathematical-based projections and perhaps some 'mock-up' models, but hybrids have a tendency rapidly to become SF.

The threat of such hybridity and of discursive convergences may be such that the term 'future' itself is disavowed for fear of its destabilising capabilities. Those depictions of the future claiming to be most truthful never announce themselves as such, nor do ones deployed in attempts to gain or retain power. Political platforms and programmes are based on scientific or economic research or perhaps forecasts, never on 'futuristics' and rarely these days even on visions of the future. Perhaps what is operating here is a fear that admitting to the referent being unknown would expose the fragility of the edifice and mark it as fictional.

Because SF happily admits science and the 'factual', while science rejects the fictional, the fictional components of the hybrid, rather than the non-fictional determine its location. Scientific discourse is still that within which truth claims can most readily be made, but perhaps the power in talking about the future, against the grain of the regimes of truth and even in the face of persistent pessimism, lies more with fictions - embracing narrativity, exploiting the affective in riots of SFX and not having to engage in tactics of denial when the events overtake expectations.

APPENDIX A

(Left) Oliphant, *The Guardian*, 15/2/87, p17
(Below) Gibbard, *The Guardian*, 9/12/87, p6



APPENDIX B

TOMORROW'S WORLD: THE GREENHOUSE EFFECT SPECIAL 31/ 1/1989
BBC1 7.00pm. Editor: Richard Reisz. [Transcript by Frances Bonner.]

(Only brief italicized references are made to the visuals.)

Standard 1988-9 opening: the spherical blue and white logo in flowers etc.. Opens on view over coast out to sea, circular refraction of sunlight across image, all brown and gold. Pan along coast to tiny figure of Peter McCann. "This is the farthest edge of Europe, the continent's outer skin, where it breathes clean air and is washed by unpolluted waters. *[MCU on Peter taking deep breath.]* You can almost smell the purity of this place. This is Connemara, on the west coast of Ireland. It's reckoned to have about the cleanest air in Europe and yet even here the atmosphere is changing in ways which threaten all of us." *Peter walks inland. CU on his wellington boot splashing through a small pool. He approaches a stone building.* "One tiny stone cottage in this remote spot is part of a global research programme measuring minute amounts of gases in the atmosphere. Here scientists are tracking one of the most profound and far-reaching problems facing the world today. It's called the Greenhouse Effect."
Cut to the Tomorrow's World studio apparently bare of props apart from a blue globe with unidentifiable additions. Judith Haan speaks to camera. "Good evening and welcome live to a special edition of *Tomorrow's World.* As most of us have noticed this winter, the world is getting warmer. In fact, globally 1988 was the hottest year on record. In the next forty years, world temperatures are expected to rise to their highest level since the last ice age 18,000 years ago. Tonight we'll be investigating what's happening, how we might adapt to the changes and if there's anything we can do to prevent them. In particular we'll be looking forward those forty years to 2030, well within many of our lifetimes, to see how different the world might be by then. One of the main things we can expect is dramatic changes in the climate, like those which have recently been making the headlines.
Cut to a sequence of news film. 1. Firemen removing fallen trees from road. Newsreader V.O.: "Southern Britain is clearing up after the worst night of storms since records began almost 300 years ago."
2. Film of people wading through flooded streets and then a breach in a dam.

V.O.: Over 250 people have died in floods which have devastated South-eastern China. The torrential rains are said to be the worst for centuries."

3. Film of very high waves on breakwater. V. O.: " Strong winds and driving rain are beating in on coastal areas of Northern Mexico and Texas, as Hurricane Gilbert, one of the fiercest this century continues to sweep across the Gulf of Mexico."

Cut to Maggie Philbin in studio. "Isolated incidents or the disastrous first fruits of the Greenhouse Effect? Most researchers are now convinced that global weather patterns are in the process of changing and becoming more unpredictable. But [sic.] they are prepared to come up with a long range forecast. So here with the weather for a typical winter's day in 2030, is John Kettley."

Standard BBC weather presentation - title slide, forecaster speaking to camera, weather maps. "Thank you, Maggie. Well the warm wet windy weather is going to continue over the British Isles over the foreseeable future. You can see temperatures here once again up to 12^{o} and as high as 15^{o} in western parts of Ireland. The breeze coming in off Europe where the winds are up to gale force across central and northern parts at the moment, all coming around an area of high pressure centred over Finland. But once again we've got an area of low pressure down over the Gulf of Genoa. These seem to be developing readily these days, bringing some wet and windy weather and rather muggy weather across much of Italy, but the temperatures are high enough to make it quite humid. Now we've got some very warm weather indeed down in southern parts of Spain, North Africa. The temperature there, 21 to 23^{o} Celsius, so excellent for sun-bathing, but not very good for skiing in the Alps, because this warm weather is affecting skiing quite considerably, just restricting it to the highest peaks. But if you do fancy some skiing go up to north-eastern parts of Scandinavia, where the temperatures there are -20 to -25^{o}C, with quite a number of snow showers coming along as well. How about Iceland though for a midwinter break? The temperature there, 13^{o} and plenty of sunshine to come as well. And that's it from me."

Cut to Howard Stableford in studio. "Thank you John, and if they'll be enjoying the winter sun in Reykjavik, what's the shift in world weather going to mean closer to home? Well, throughout tonight's programme, I'll be looking at the likely impact on one very typical area." *Camera pulls back to reveal Howard standing behind a relief map .* "It's this region around the Tay Estuary on the east coast of Scotland. To give you some geography, there's Arbroath; Dundee down here and over there the fair city of Perth."

Pan to Maggie. "Now concern about the Greenhouse Effect isn't new. In fact a Swedish scientist warned about the possible global consequences as long ago as 1896. He pointed out that the energy we receive from the sun is largely in the form of *[CU on globe, attachments revealed as two lengths of neon tubing and and a transparent, larger covering globe]* these short wave-length radiation [sic.], and that comes through the atmosphere, warms up the earth and the heat is then radiated back into space, but this time takes the form of longer wavelength radiation, and that's more readily absorbed by the gases in the atmosphere, notably by carbon dioxide, and that traps the heat like a blanket around the earth. This Greenhouse Effect is absolutely essential and without it the earth would be permanently frozen. The problem is that our actions are now producing more and more of the greenhouses gases."
Judith in studio. "So far about thirty of these greenhouse gases have been identified and by far the most abundant and important is carbon dioxide. Its level has been increasing ever since the Industrial Revolution, mainly because of burning fossil fuels - gas, oil and coal - as well as all the wood burnt by deforestation [sic.]." *She walks across the studio to a small burning brazier.* "The other gases involved are less common, but many are far more potent. Methane, for example, is twenty times as powerful as carbon dioxide. It comes from bacteria in the guts of animals like cows and sheep, from rubbish dumps and from water-logged land like rice-paddies. Another important greenhouse gas is nitrous oxide produced by fertilizers and anything burning at high temperatures. But most potent of all are CFC's, or chlorofluorocarbons, which we've heard so much about recently in relation to the ozone layer. They're used in refrigerators, in industrial cleansers, various types of packaging and, in much of the world, they are still used in these - in aerosol sprays." *She has walked past a pen of calves, some bags of fertilizer, fridges and held up a hamburger carton and an aerosol can.* "The total quantity of all these gases now being produced is enormous. As Howard's been seeing in Scotland, we're churning them out around the clock."
Cut to digital clock reading 7.29am, rock music, light being switched on, gas fire lit, flame, chimney with smoke and TV aerial, woman using hairspray, appliance being plugged in, tap turned on, shaving cream dispensed, coal fire burning, man's face on TV, truck pulling up to 'Cleaner diesel' pumps, getting filled up, small boat by pier puffing out smoke, then Howard, sitting on harbour wall. "Make no mistake about it, we are all contributing to the Greenhouse Effect. Behind me the 24,000 inhabitants of Arbroath are getting ready for another working day and on this one day alone, this typical small

town will account for the release of 705 tons of carbon dioxide into the atmosphere. Electricity being generated for Arbroath contributes almost a third of that - 270 tons." *Light goes on in shop, cut to rooftops and chimneys.* "With another hundred coming from fires, boilers and cookers; 120 tons come from cars and other vehicles and a further 170 from industry. So just about everything we do these days produces more carbon dioxide. In fact figures show that the amount we release has more than doubled since 1950." *Cars, rubbish dumps.* "The town also produces rubbish, tons of it every day." *Howard stands by front-end loader on rubbish dump.* "It's dumped at this land-fill site, where it rots and gives off methane. Many of the aerosols that end up here are still propelled by CFC's, *[he picks one up]* and still more CFC's are released when some of the more than 240 fridges that the people of Arbroath throw away each year, are broken up." *Fridge is crushed under HGV wheels.*"There's also nitrous oxide produced by fertilisers, cars and fires. So between them, methane, CFC's and nitrous oxide nearly double the effect of the carbon dioxide." *Cut from dump to golden sunset, Howard walks alone along a beach.* "Combine the effects of all the gases and on this single day the town has been responsible for adding the equivalent of 1300 tons of carbon dioxide into the atmosphere. That's three times as much as in 1950 and there's nothing unusual about Arbroath."

Cut to shot of the ocean and Peter's voice. (He is later revealed sitting on a rock by the shore). "As those emissions mix and travel through the air, their composition changes. Greenhouse gases are continually being created and destroyed by chemical reactions in the atmosphere and by natural processes on land and sea. The end result, the so-called 'background levels' can only be seen in remote corners of the world. Carbon dioxide is measured in Hawaii and the Antarctic. Here on the west coast of Ireland is one of the five sites that ring the globe all the way to Tasmania, monitoring all the other greenhouse gases - methane, nitrous oxide, CFC's and so on. The prevailing south-westerly winds have a clear run of many thousands of kilometres. There's no more land beyond these rocks until you reach America. The air arrives here thoroughly mixed and free of local pollution. Above the cottage an inlet draws in tiny gulps of air." *Shot of Peter in cottage doorway, then shot of inlet. Pan down to cottage roof.* "They travel down to a room inside, where there's an instrument of quite unimaginable sensitivity." *He enters the cottage and leans against a metal box with tubes etc..* "And this is it, a gas chromatograph, which can sense changes in the air as small as one part per trillion, and look

at this - a CFC trace for last October." *He moves across the room and points to a computer screen on which a graph with a high peak is displayed, he points in CU.* "And there around the 15th, is a spell when the wind turned to easterly, catching a brief whiff of Europe's aerosols and refrigerators. In the ten years that this project has been operating, it's revealed the true magnitude of the atmospheric problem." *The camera pulls back to a medium shot of Peter with the computer screen, then closes up.* "This is Freon 11, used in aerosols and foams, and this is Freon 12, used in refrigerators. Both have increased at the rate of 5per cent per year. These CFC's persist in the atmosphere for around 100 years. So even if we were to stop using them tomorrow, this charts a legacy that will effect us for generations to come." *Peter and the equipment are shown in medium long shot. The camera cuts outside to show the cottage at night with the windows lit, then the lights are turned off.*

Cut to studio, Maggie by the globe. "Measurements like those from Ireland indicate that by the year 2030, the total effect of greenhouse gases in the atmosphere will have doubled from its natural level. In that brief time, the world's climate is expected to undergo major changes. To try and work out what will happen, researchers build up complex computer simulations of the atmosphere, called general circulation models." *Camera pulls back, lights dim on Maggie and come up on three monitors in the foreground. They reveal different displays. Maggie approaches one monitor.* "And here's one of those GCM's, developed at the Goddard Institute for Space Sciences in New York, and this shows global temperatures as they are now." *CU on computer screen showing map of the world in greens and yellowy browns.*"But if we run the sequence forward we can see a prediction for 2030. Now the white areas indicate temperatures which will stay the same, but the reddish areas and the yellow areas here indicate an increase in temperature. About half a dozen GCM's have been developed and although they disagree on many points, all confirm that the greatest warming will be in the high latitudes with winters becoming especially mild. By 2030, the average world temperature is expected to rise several degrees. But these GCM's largely ignore two major factors. Firstly the oceans: they have their own hot and cold circulation patterns which interact with the weather. One example is the Gulf Stream that sweeps across from the Gulf of Mexico and keeps the UK several degrees warmer than it should [sic.]. Some believe that with the temperature change, it could be diverted leaving the British Isles colder. And the other enormous uncertainty is the effect of clouds."

The monitor picture changes from the models to a shot of Peter standing on the beach. "The problem with clouds is that they can both warm and cool the earth's atmosphere. The low level fluffy clouds that we often associate with rain, like some of these here, reflect the sun's shortwave radiation back out into space so effectively they actually make the earth cooler. But high above this layer is another layer, the thin icy wisps of cirrus. Made up of many tiny types of ice particles, its known that they can warm the earth by trapping the longwave radiation it gives off, but quite how much they do that and how that'll alter the Greenhouse Effect is little understood. The only way to find out is to study it close up. So a project has been set up called the International Cirrus Experiment of which this plane is a major part." *Shot of plane, then CU of equipment on it.* "It bristles with sensors for measuring the temperature and composition of all types of clouds including the icy cirrus, but really crucial to understanding the secrets of the cirrus is the equipment in these two pods here, where a laser beams across at a special camera to produce pictures of the heart of the problem - the ice crystals." *In the plane taxiing before take-off. Plane noise then pilot and control tower exchange comments. Shot of plane taking off. Peter gets up from his seat.* "What they are trying to establish are the types of ice crystals formed under different conditions." *Peter moves to back of plane and sits before an equipment console. CU on computer screen to show crystal patterns.*"And how they effect the reflection of heat by the cirrus. With this device we can actually count the number of ice crystals that are going past the sensors out there on that wing. And this is the kind of traces you get. There you have a beautiful ice crystals right there on the screen. But these pictures are only in two dimensions so that's why the laser camera, which we talked about earlier, is on the other wing. It's producing holographic pictures of the minute ice particles as they flash through the beam at 200 mph." *Peter speaks to camera. Then shots of plane flying through clouds.* "Back on the ground a laser reconstructs the image in three dimensions. This is called a bullet rosette." *Peter is now on the ground in front of a grander console with a monitor and keyboard.* "But how may these shapes relate to the Greenhouse Effect? Well, just recently it's been discovered that certain types of cirrus don't warm the earth but cool it, just like the low cloud. The crucial thing to find out is what type of crystals contribute to warming and which to cooling." *Graphics throughout this have been of crystal patterns on computer screens.* "Almost certainly in a warmer climate there will be an increase in cloud cover. Now this may act as a sort of brake to total global warming or it may speed it up. Only when projects like this reveal more about

the elusive cirrus can that knowledge be included in the computer models and the true climatic effects of the clouds be known.

Cut to studio and Judith in front of three computer screens. "So with that kind of uncertainty, is it possible to make any predictions at all? Well all the computer simulations agree that there'll definitely be a rise in temperature. The question is just how much? Will the average rise by one and a half or 5º Celsius by 2030? Either way that may not sound a lot but it's enough to bring major changes. *[CU on screen showing map of the world.]* This map is a prediction of rainfall. It shows that far northern latitudes it will become wetter - that's the dark green. Further south deserts like the Sahara are likely to spread, while monsoons become heavier. The American south and mid-west is expected to become drier. And here in Britain most researchers predict that it'll be generally warmer. But the south will have a drier, Mediterranean climate, while the north will be wetter. But what will these climatic changes and the raised levels of greenhouse gases in the atmosphere mean for crops and other plants. It's an area that's still not fully understood." *Visuals have shown Judith pointing at areas of the map in CU.*

Cut to Maggie in a very large greenhouse with tomato plants. "One thing we do know though is that in general plants do benefit from an increased level of one of the greenhouse gases, carbon dioxide. They use it, of course, in the process of photosynthesis. Commercial growers have exploited this fact for years, creating if you like an artificial greenhouse effect. In here they're burning liquid paraffin to enrich the atmosphere with carbon dioxide and these young tomato plants are clearly thriving on it. In a closed environment like this growing conditions can be carefully regulated. How plants would react to a real Greenhouse Effect could be a very different story." *Cut to shot of pressed leaf in a book, then up to Maggie in a plant libary.* "These alder leaves were pressed in 1869 and they provide a clue to the way some plants may already be responding." *Cut to a man with a measuring device working on a tree in a walled garden.* "On a field trip in the Scottish hills one summer, Ian Woodward, a botanist at Cambridge University, *[CU on meter]* noticed that the leaves of trees on the higher slopes had more stomata, the minute pores through which trees absorb carbon dioxide and lose water, than those at lower levels. He knew there was less carbon dioxide at higher altitudes *[CU on face]* than lower down and he reckoned that the plants might in some way be reacting to that difference." *Return to the dried plant in the book.*"When this specimen was collected 120 years ago, there was 16 per cent less carbon dioxide in the atmosphere than there is now, so if Ian Woodward's theory is

correct, then today's plants should have fewer stomata than their Victorian counterparts." *Cut to Woodward in a laboratory, then magnified CU on leaf surface.* "And having examined the distribution of stomata under the microscope, that's exactly what he has found." *Back to Maggie in the plant library.* "So it seems that as the CO_2 levels rise in the future, plants may evolve to produce even fewer stomata. And yet they're still likely to absorb more carbon dioxide and so to grow more quickly. And having fewer stomata may mean that they're better at retaining moisture and so less prone to drought." *Two people in a laboratory with plants and equipment.* "The Cambridge team are now starting to test plants like winter wheat under a whole range of conditions. Growing them in different amounts and combinations of carbon dioxide, heat and water to see how they will respond.*[Maggie walking in a garden.*] In general it looks as though plants will grow better under the Greenhouse Effect, but the story doesn't end there." *Judith in the studio behind trays of winter wheat.* "And that's because if crops do better, then so will weeds, pests and diseases like mildew which makes leaves go yellow. Growing seasons will also be disrupted. Now at this stage of winter, winter wheat should look like this, but with a shorter milder winter it becomes far more developed and as nutrients get used up faster, crops would need more fertiliser. World wide the effects would be dramatic.*Cut from CU on different samples of wheat to a map of the world.* "For example the great wheat belts of America and Russia are expected to move north, while in Europe unfamiliar crops like cereals could move into the cold wastes of Iceland. Over the east coast of Scotland, farmers of 2030 will be getting used to temperatures much like those of northern France today." *She looks at the relief map of the Tay Estuary.*

Cut to Howard VO some modern farm buildings."This is Ian Stirling's farm just outside Arbroath. What will they be growing here in forty years time? Well the raspberry bushes for which this area is famous will probably still be here. In fact they might even get two crops a year in a warmer longer growing season." *Cut to tractor with sprayer.*"And there'll still be barley, although farmers may have to use more chemicals. This year for the first time ever, Ian Stirling is having to spray his winter crop for a second time as this year's warmer temperatures encourage mildew. But the outlook could be even worse for the crops stored in these sheds - seed potatoes." *Cut to inside a shed, Howard, boxes and potatoes.* "This area produces nearly all of Britain's seed potatoes and the 3000 tons stored in here will fetch a higher price than eaters. But to

qualify for seed, the soil and the plants growing out in the fields have to pass a stringent test and if more than one in 10,000 of the potatoes is found to be diseased, then the whole crop fails the test. The hard winters up here are essential to keep down pests like aphids and nematodes which spread diseases to the plants."*Howard outside on farm.* "So Britain's seed potato production could be wiped out, but in its place will come other crops like French beans, sugar beet and even maize. Farmers like Ian will be able to adapt quickly enough to changing conditions. But there is one major crop in Scotland which doesn't take a year but a whole lifetime to mature." *Howard in forest.* "These sitka spruces are descended from trees found in the Queen Charlotte Islands off British Columbia. This strain was developed in the 1960s specifically for this area and now 70 per cent of planted forestry in Scotland is made up of this single variety. But why shouldn't they benefit from the warmer weather? Well, if the trees don't get 120 days below 5ºC during the winter, then the buds' growth in spring is stunted. It takes sixty years to grow a spruce, so when these young trees are matured by the year 2032, they may well find that the climate then doesn't suit them at all, and now may be the time to start looking for a different variety much more suited to a warmer climate." *Back to the tractor on Ian Stirling's farm.* "For this area of the country, changes may be both good and bad, but one thing's certain, in the warmer world of 2030, the landscape will be different."

Maggie in the studio with a beaker of liquid and a thermometer. "So parts of Britain can expect to undergo a sea change, quite literally in fact, because one further consequence of the Greenhouse Effect is that sea level is rising, in fact it's gone up fifteen centimetres since the turn of the century. And as the world gets warmer, that increase will become even more dramatic. For a start, sea water, just like the liquid in this thermometer, expands as it gets warmer and this expansion will be the main cause of rising sea level. But it won't be the only one, mountain glaciers and polar ice caps will start to melt, raising sea level even further, though increased snowfall at the poles may partly offset that process. Even so, the oceans may rise about forty centimetres, that's about fifteen inches, by the year 2030 with potentially catastophic results." *Shot of sea then tropical island.* "Small island nations like the Seychelles and the Maldives could virtually disappear. Major agricultural areas like the Nile Delta, already seriously at risk from flooding, are likely to be inundated. And what about the UK? Well let's look again at the Tay Estuary *[to relief map]* and the typical changes which this may face."

Cut to shot of the sea and Howard walking on the beach. "The effects on the

British coastline may be less severe, but even a rise of forty centimetres by the year 2030 will cause major changes. Schemes to prevent erosion like these rocks protecting the golf course here at Carlusty will be needed by hundreds of other locations around the coast. But such a rapid rise in such a relatively short space of time may simply be too much for many of our beaches and they will be swept away. And the water will be rising even inland." *Shot of city on a river.* "Perth is just at the high water mark of the Tay Estuary. Fresh water from the hills has flooded this town many times in the past, although in recent years hydro-electric schemes have held back the river and solved most of the problems. But predictions say Scotland's climate will be wetter, so fresh water flooding may return and be compounded by a threat from the rising sea." *Various shots of Perth, stoneworks, flood- marks, a bridge, the river.* "Although this part of the river is tidal, salt water does not yet reach as far as Perth, but as sea level rises, salt may start to leach into the fresh water supply and drains and sewers may back up. But most worrying of all, a high tide combined with high rainfall will bring the danger of flooding to large areas of the town. And of course Perth isn't alone, many communities are likely to be affected; and the cost of protecting themselves against the dangers of swollen rivers and rising sea will be high. Inevitably then, some areas of this country too will simply disappear."

Judith in studio."So what effects are we likely to see on the shape of Britain as a whole in 2030? Well on a national scale an increase of forty centimetres won't make the map look very different. *[Cut to map of UK.]* But many low-lying areas like Fenland, the Wirral and the Thames Estuary will be under increased risk of flooding and may need extra defences. And unless some solution is found, it's predicted that by the end of the twenty-first century the sea could have risen about a metre with many of those areas permanently flooded."

Peter in studio. "Unfortunately, with 90 per cent of the world's energy coming from fossil fuels, there is no quick solution, but we could cut our emissions of carbon dioxide by generally improving say insulation and the efficiency of power stations. We could also begin to move our energy supplies away from fossil fuels. Electricity could be generated from renewable sources or nuclear power. Cars like this prototype could run on hydrogen gas. When hydrogen burns it produces mainly water and no carbon dioxide, but one problem here is how to manufacture sufficient hydrogen without using fossil fuels. A more surprising alternative is being developed in this local council vehicle which runs on methane that will come from their own sewage works and rubbish

dumps. Now even though burning methane does produce carbon dioxide, it's much better than letting the methane escape, as it's a highly potent greenhouse gas. And of course we could replace the CFC's. In Britain, 90 per cent of aerosols should be CFC-free by the end of this year. But cutting CFC's out altogether may take longer. This camping fridge has replaced Freon with ammonia, which is not a greenhouse gas, but the foam insulation inside still depends on CFC's."

Maggie in studio by microscope linked to monitor. "But all these measures taken by themselves could only slow down the global warming that's already taking place. If there is a real long-term solution, perhaps it lies in the ability of our planet to regulate itself. About half the carbon dioxide that we've produced since the Industrial Revolution has been taken up by the oceans. Each summer billions of microscopic organisms, in particular these coccoliths, multiply in the warm surface layers of the ocean, taking in carbon dioxide for photosynthesis and for the production of their strange chalky shells."

Magnified CU on organisms. "And the coccoliths are eaten by zooplankton, you can see a few of them there *[points to petri dish].* Their waste, rich in carbon, gradually sinks to the ocean floor where some of it forms sediment. In this way carbon dioxide is continuously being extracted from the atmosphere and locked up in new sedimentary rocks. Exactly how this carbon cycle works in the ocean, how long it takes and how much more the oceans can absorb is still unclear. A major international study takes place in a few weeks time to try and understand the process more fully."

Judith in studio, to camera. "One thing we do know though, is that at present human activity is producing carbon dioxide about twice as fast as the oceans are absorbing it. As carbon dioxide levels and temperatures increase, the result may be more coccoliths absorbing more carbon dioxide and the balance could change. If we at the same time can cut our emissions to meet what marine orgainisms can absorb, there could be a new stable climate, somewhat warmer than it is now. It is unlikely that anything can stop most of the changes we've talked about this evening, but if we react quickly enough, things could then stabilize. This is not, at least not yet, a global catastrophe, but nor is it a problem we can ignore. The Greenhouse Effect is going to alter our lives and our surroundings in tomorrow's world. Planning for those changes is needed now. Goodnight."

The titles roll over the studio set with the small burning brazier, the calves, the fridges etc..

SOURCES CONSULTED

MONOGRAPHS

Altman, Rick (ed.): *Genre: The Musical*, Routledge and Kegan Paul, London, 1981.

Appignanesi, Lisa (ed.): *Postmodernism*, ICA Documents 4, London, 1986.

Aronson, Ronald: *The Dialectics of Disaster*, London, Verso, 1983.

Aubrey, Crispin (ed.): *Nukespeak: The Media and the Bomb*, London, Comedia, 1982.

Bailey, Margaret: *Live Long and Prosper: The Star Trek Phenemenon*, Rutgers University GSLS Occasional Paper No.76-2, New Brunswick, New Jersey,1976.

Barthes, Roland: *Camera Lucida: Reflections on Photography*, New York, Hill and Wang, 1981.

--------: *Image-Music-Text*, (Essays Selected and Translated by Stephen Heath), Glasgow, Fontana/Collins, 1977.

Baudrillard, Jean: "The Implosion of Meaning in the Media and the Implosion of the Social in the Masses" in Kathleen Woodward (ed.): *The Myths of Information*, Madison, Coda, 1980.

--------: "The Structural Law of Chance and the Order of Simulacra" in John Fekete (ed.): *The Structural Allegory: Reconstructive Encounters with New French Thought*, Manchester University Press, 1984.

--------: *Selected Writings*, (Edited and Introduced by Mark Poster), London, Polity Press, 1988

Benjamin, Walter: "The Work of Art in the Age of Mechanical Reproduction" (1936) in *Illuminations*, London, Jonathon Cape, 1970.

Bennett, Tony (et al eds): *Popular Television and Science*, London, BFI, 1981.

Bennett, Tony and Janet Woollacott: *Bond and Beyond: The Political Career of a Popular Hero*, London, MacMillan, 1987.

Blair, Karin: *Meaning in Star Trek*, New York, Warner Books, 1977.

Broad, William J.: *Star Warriors*, London, Faber and Faber, 1986.

Brooke-Rose, Christine: *A Rhetoric of the Unreal*, Cambridge University Press, 1981.

Brosnan, John: *Movie Magic*, London, MacDonald, 1974.

Bruno, Giuliana: "Ramble City: Postmodernism and *Blade Runner*", in Annette Kuhn (ed.): *Alien Zone: Cultural Theory and Contemporary Science Fiction Cinema,* London ,Verso, 1990.

Burgin, Victor: *The End of Art Theory*, London, MacMillan, 1986.

Burke, Edmund: *A Philosophical Enquiry into the Origins of our Ideas of the Sublime and the Beautiful*, (Edited with an Introduction and Note by J.T. Boulton), London, Routledge and Kegan Paul, 1958.

Byers, Thomas B.: "Commodity Futures" in Annette Kuhn (ed.): *Alien Zone: Cultural Theory and Contemporary Science Fiction Cinema*, London, Verso, 1990.

Chase, Malcolm and Christopher Shaw (eds.): *The Imagined Past: history and nostalgia*, Manchester University Press, 1989.

Chase, Malcolm and Christopher Shaw: "The Dimensions of Nostalgia", in Malcolm Chase and Christopher Shaw (eds.): *The Imagined Past: history and nostalgia*, Manchester University Press, 1989.

Chilton, Paul (ed.): *Language and the Nuclear Arms Debate: Nukespeak Today*, London, Frances Pinter (Publishers), 1985.

Comolli, Jean-Louis: "Machines of the Visible", in Teresa de Laurentis and Stephen Heath (eds): *The Cinematic Apparatus*, London, MacMillan, 1980

Creed, Barbara: "Horror and the Monstrous-Feminine: An Imaginary Abjection", in James Donald (ed.): *Fantasy and the Cinema*, London, BFI Publishing, 1989.

de Lauretis, Teresa: *Technologies of Gender*, Indiana University Press, 1987.

--------(ed.): *Feminist Studies/Critical Studies*, London, MacMillan, 1988.

de Lauretis, Teresa and Stephen Heath (eds): *The Cinematic Apparatus*, London, MacMillan, 1980

Doane, Mary Ann: "Technophilia: Technology, Representation and the Feminine" in Mary Jacobus, Evelyn Fox Keller, Sally Shuttleworth (eds.): *Body/Politics: Women and the Discourses of Science*, London, Routledge, 1990.

Donald, James (ed.): *Fantasy and the Cinema*, London, BFI, 1989.

Douglas, Mary: *Purity and Danger*, London, Routledge and Kegan Paul, 1969.

Dowling, David: *Fictions of Nuclear Disaster*, London, MacMillan, 1987.

Dyer, Richard: "Entertainment and Utopia" in Rick Altman (ed.): *Genre: The Musical*, Routledge and Kegan Paul, London, 1981.

Eco, Umberto: *A Theory of Semiotics*, London, MacMillan, 1977.

--------: *Semiotics and the Philosophy of Language*, London, MacMillan,1984.

--------: *Faith in Fakes*, London, Secker and Warburg, 1986.

Elshtain, Jean Bethke: *Women and War*, Brighton, Harvester, 1987.

Fekete, John (ed.): *The Structural Allegory: Reconstructive Encounters with New French Thought*, Manchester University Press, 1984.

Finney, Ben R. and Eric M. Jones (eds.): *Interstellar Migration and the Human Experience*, Berkeley, University of California Press, 1985.

Flick, James: "Artificial Intelligence and Industrial Robots: An Automatic End for Utopian Thoughts" in Everett Mendelsohn and Helga Novotny (eds.):*Nineteen Eighty-Four: Science between Utopia and Dystopia*, Sociology of the Sciences, Vol. VIII, D. Reidel Publishing Co. 1984.

Foley, Barbara: *Telling the Truth: the theory and practice of documentary fiction*, Ithaca, Cornell University Press, 1986.

Foster, Hal (ed.): *Postmodern Culture*, London, Pluto Press, 1985.

Foucault, Michel: *The Archaeology of Knowledge*, (trans. A.M. Sheridan Smith), London, Tavistock, 1972.

--------: *Discipline and Punish*, (Trans. A. Sheridan), London, Allen Lane, 1977.

--------: *Power/Knowledge: Selected Interviews and other writings*, (ed. Colin Gordon), Brighton, Harvester, 1980.

--------: "The Order of Discourse", in Michael J. Shapiro (ed.): *Language and Politics*, Oxford, Basil Blackwell,1984.

Franklin, H. Bruce: "Don't Look Where We're Going: Visions of the Future in Science Fiction Films 1970-82" in George Slusser and Eric S. Rabkin (eds.) *Shadows of the Magic Lamp*, Carbondale, Southern Illinois University Press, 1985.

Gardner, Carl and Robert Young: "Science on TV: A Critique" in Tony Bennett (et al eds.): *Popular Television and Science*, London, BFI, 1981.

Gerrold, David: *The World of Star Trek*, (Revised Edition), New York, Bluejay, 1984.

Gifford, Denis : *Science Fiction Film*, London, Studio Vista/Dutton Paperback, 1971.

Glasgow University Media Group: *War and Peace News*, Milton Keynes, Open University Press, 1985.

Goodman, Nelson: *Ways of Worldmaking*, Hassocks, Sussex, Harvester Press, 1978.

Gould, Stephen Jay: *Ever Since Darwin: Reflections in Natural History*, Harmondsworth, Penguin, 1980

Greimas, A. J.: *Structural Semantics: An Attempt at a Method*, Lincoln and London, University of Nebraska Press, 1983.

Hardy, Phil: *Science Fiction*, The Aurum Film Encyclopaedia Vol. II, London, Aurum, 1984.

Harvey, David: *The Condition of Postmodernity*, Oxford, Basil Blackwell, 1989.

Heath, Stephen: *Questions of Cinema*, London, MacMillan, 1981.

Jacobus, Mary, Evelyn Fox Keller, Sally Shuttleworth (eds.): *Body/Politics: Women and the Discourses of Science*, London, Routledge, 1990.

Jameson, Fredric: *The Prison-house of Language*, Princeton University Press, 1972.

--------: *Fables of Aggression*, Berkeley and Los Angeles, University of California Press,1979.

--------: *The Political Unconscious*, London, Methuen, 1981.

--------: "Postmodernism and Consumer Culture" in Hal Foster (ed.): *Postmodern Culture*, London, Pluto Press, 1985.

--------: "Cognitive Mapping" in Cary Nelson and Lawrence Grossberg (eds): *Marxism and the Interpretation of Culture*, London, MacMillan, 1988.

Jones, Greta, Ian Connell and Jack Meadows: *The Presentation of Science by the Media,* Primary Research Communications Centre, University of Leicester, 1978.

Kant, Immanuel: *The Critique of Judgement*, (trans. James Creed Meredith), Oxford, Oxford at the Clarendon Press, 1986.

Kavanagh, James H.: "Feminism, Humanism and Science in *Alien*", in Annette Kuhn (ed.): *Alien Zone: Cultural Theory and Contemporary Science Fiction Cinema*, London, Verso, 1990.

Kilborn, Richard: *Multi-Media Melting Pot: Marketing When the Wind Blows*, London, Comedia, 1986

Koenig, Walter: *Chekov's Enterprise*, New York, Pocket Books, 1980.

Krieger, Murray (ed.): *The Aims of Representation*, New York, Columbia University Press, 1987.

Kroker, Arthur and Marilouise (eds.): *Body Invaders: sexuality and the postmodern condition*, London, Macmillan Education, 1988.

--------: "Panic Sex in America" in Arthur and Marilouise Kroker (eds.):*Body Invaders: sexuality and the postmodern condition*, London, Macmillan Education, 1988.

Kuhn, Annette (ed.): *Alien Zone: Cultural Theory and Contemporary Science Fiction Cinema*, London, Verso, 1990.

--------: "Introduction: Cultural Theory and Science Fiction Cinema" in Annette Kuhn (ed.): *Alien Zone: Cultural Theory and Contemporary Science Fiction Cinema*, London, Verso, 1990.

Lakoff, George and Mark Johnson: *Metaphors We Live By*, University of Chicago Press, 1980.

Lévi-Strauss, Claude: *Structural Anthropology Vol 1*, (trans. by Claire Jacobson and Brooke Grundfest Schoepf), London, Allen Lane the Penguin Press, 1968.

Lowenthal, David: "Nostalgia tells it like it wasn't" in Malcolm Chase and Christopher Shaw (eds.): *The Imagined Past: history and nostalgia*, Manchester University Press, 1989.

Lyotard, Jean-Francois: *The Postmodern Condition: A Report on Knowledge*, (trans. by Geoff Bennington and Brian Massumi), Manchester University Press,1984.

--------: "Defining the Postmodern", in Lisa Appignanesi (ed.): *Postmodernism*, ICA Documents 4, London, 1986.

Martin, Emily: "Science and Women's Bodies: Forms of Anthropological Knowledge" in Mary Jacobus, Evelyn Fox Keller, Sally Shuttleworth (eds.): *Body/Politics: Women and the Discourses of Science*, London, Routledge, 1990.

Mendelsohn, Everett and Helga Novotny (eds.):*Nineteen Eighty-Four: Science between Utopia and Dystopia*, Sociology of the Sciences, Vol. VIII, D. Reidel Publishing Co. 1984.

Moss, Peter: "Rhetoric of Defense in the United States: Language, Myth and Ideology" in Paul Chilton (ed.): *Language and the Nuclear Arms Debate*, London, Frances Pinter, 1985.

Moylan, Tom: *Demand the Impossible: Science fiction and the utopian imagination*, London, Methuen, 1986.

Neale, Stephen: "Issues of Difference: *Alien* and *Blade Runner*" in James Donald(ed.): *Fantasy and the Cinema*, London, BFI, 1989.

Nelson, Cary and Lawrence Grossberg (eds): *Marxism and the Interpretation of Culture*, London, MacMillan, 1988.

Parrinder, Patrick: *Science Fiction: Its Criticism and Teaching*, London, Methuen, 1980. p2

Payne, Keith: *Strategic Defense: Star Wars in Perspective*, Lanham MD., Hamilton Press,1986.

Peary, Danny (ed.): *Omni's Screen Flights/Screen Fantasies: the future according to science fiction cinema*, New York, Dolphin,

1984.

--------: "Directing *Alien* and *Blade Runner*", An Interview with Ridley Scott, in Danny Peary (ed.): *Omni's Screen Flights/Screen Fantasies: the future according to science fiction cinema*, New York, Dolphin, 1984.

Penley, Constance: *The Future of an Illusion: Film, Feminism and Psychoanalysis*, London, Routledge, 1989.

Petchesky, Rosalind Pollack: "Foetal Images: The Power of Visual Culture in the Politics of Reproduction" in Michelle Stanworth(ed.): *Reproductive Technologies: Gender, Motherhood and Medicine*, Oxford, Polity Press, 1987.

Pollock, Dale: *Skywalking: The Life and Films of George Lucas*, London. Elm Tree Books, 1983.

Pressler, Senator Larry: *Star Wars: The Strategic Defense Initiative in Congress*, New York, Praeger, 1986.

Róheim, Géza: *Australian Totemism*, London, Allen and Unwin, 1925,

--------: *Sexuality in the Field of Vision*, London, Verso, 1986.

The Royal Society: *The Public Understanding of Science*, (Report of a Royal Society ad hoc Group endorsed by the Council of the Royal Society), London, 1985.

Rubey, Dan: "*Star Wars*: Not So Long Ago, Not So Far Away", in Peter Steven (ed): *JumpCut: Hollywood, Politics and Counter Cinema*, Toronto, Between the Lines, 1985.

Sacks, Oliver: *The Man Who Mistook His Wife for a Hat*, London, Duckworth,1985.

Said, Edward: *Orientalism*, New York, Vintage Books, 1979.

Schleifer, Ronald: "Introduction" to A.J. Greimas:*Structural Semantics*: *An Attempt at a Method*, Lincoln and London, University of Nebraska Press, 1983.

Shaheen, Jack G.: "The War Game" in Jack G. Shaheen(ed.): *Nuclear War Films*, Carbondale, Southern Illinois University Press, 1978.

Shapiro, Michael (ed.): *Language and Politics,* Oxford, Basil Blackwell, 1984.

Silverstone, Roger: *Framing Science: The Making of a BBC Documentary*, London, BFI, 1985.

Slusser, George and Eric S. Rabkin (eds.): *Shadows of the Magic Lamp*, Carbondale , Southern Illinois University Press, 1985.

Smith, Melvin: *Space Shuttle*, Sparkford, Haynes, 1985.

Sobchack, Vivian: "The Virginity of Astronauts: Sex and the Science Fiction Film" in George Slusser and Eric S. Rabkin (eds.): *Shadows of the*

Magic Lamp, Carbondale , Southern Illinois University Press, 1985

--------: *Screening Space*, New York, Ungar, 1987.

Sontag, Susan: "The Imagination of Disaster", *Against Interpretation and other essays,* (1966), London, Andre Deutsch, 1987.

Stanworth, Michelle (ed.): *Reproductive Technologies: Gender, Motherhood and Medicine*, Oxford, Polity Press, 1987.

Steven, Peter (ed): *JumpCut: Hollywood, Politics and Counter Cinema*, Toronto, Between the Lines, 1985.

Stewart, Garrett: "The 'Videology' of Science Fiction" in George Slusser and Eric S. Rabkin (eds.): *Shadows of the Magic Lamp*, Carbondale, Southern Illinois Press, 1985.

Suvin, Darko: *Metamorphoses of Science Fiction*, New Haven and London, Yale University Press, 1979.

--------: *Positions and Presuppositions in Science Fiction*, London, MacMillan, 1988.

Tagg, John: *The Burden of Representation*, London, MacMillan, 1988.

Thompson, Edward and others/NLR: *Exterminism and Cold War*, London, Verso, 1982

Todorov, Tzvetan: *The Fantastic: a structural approach to a literary genre*, Ithaca, Cornell University Press, 1975.

Tracey, Michael: "Censored: the *War Game* story", in Crispin Aubrey (ed.): *Nukespeak: The Media and the Bomb*, London, Comedia, 1982.

Turner, Victor: *Drama, Fields and Metaphors: Symbolic Action in Human Society*, Ithaca and London, Cornell University Press, 1974.

--------: "Liminality and the Performative Genres" in John J. MacAloon (ed.): *Rite, Drama, Festival, Spectacle*, Philadelphia, Institute for the Study of Human Issues, 1984.

Van Belle, William and Paul Claes: "The Logic of Deterrence: a semiotic and psychoanalytic approach", in Paul Chilton(ed.): *Language and the Nuclear Arms Debate: Nukespeak Today*, London, Frances Pinter (Publishers), 1985.

Wachhorst, Wyn: "The Day After: Films on Nuclear Aftermath", in Carl B. Yoke (ed.): *Phoenix From the Ashes: The Literature of the Remade World*, New York, Greenwood Press, 1987.

Warrick, Patricia S.: *The Cybernetic Imagination in Science Fiction*, Cambridge, Mass., The MIT Press, 1980.

Weart, Spencer R.: *Nuclear Fear: A History of Images*, Cambridge, Mass.,

Harvard University Press, 1988.

Williams, Raymond: *Towards 2000*, Harmondsworth, Penguin, 198X

--------: "The Politics of Nuclear Disarmament" in Edward Thompson and others/NLR (eds.): *Exterminism and Cold War*, London, Verso, 1982.

Wills, Garry: *Reagan's America: Innocents at Home*, London, Heinemann, 1987.

Woodward, Kathleen (ed.): *The Myths of Information*, Madison, Coda, 1980.

Wright, Patrick: *On Living in an Old Country*, London, Verso, 1985.

Yoke, Carl B. (ed.): *Phoenix From the Ashes: The Literature of the Remade World*, New York, Greenwood Press, 1987.

Young, Alison: *Community in Dissent*, London, Routledge, 1990

The Star Trek Starfleet Technical Manual researched and compiled by Franz Joseph, New York, Ballantine, 1975.

PERIODICALS

Alsop, Neil: "Afterlife", *Primetime*, No. 11, Summer 1986, pp26-31.

Amesley, Cassandra: "How to Watch *Star Trek*", *Cultural Studies*, 3(3), 1989, pp323-339.

Angenot, Marc: "The Absent Paradigm: An Introduction to the Semiotics of Science Fiction", *Science Fiction Studies*, 6(1), 1979, pp9-19.

Asker, James R.: "NASA Offers Five Alternatives For Landing Humans on Mars by 2018", *Aviation Week and Space Technology*, 131(22), 27 November 1989, pp30-1.

Bartter, Martha: "Nuclear Holocaust as Urban Renewal", *Science Fiction Studies*, 13(2), July 1986, pp148-158.

Bennett, Tony: "Texts, Readers, Reading Formations", *Literature and History*, 9(2), Autumn 1983, pp214-227.

Bergstrom, Janet: "Androids and Androgyny", *Camera Obscura*, Vol. 15, 1986, pp37 - 64.

Berko, Lili: "Simulation and High Concept Imagery: The Case of Max Headroom", *Wide Angle*, 10(4), 1988, pp51-61.

Bhabha, Homi: "The Other Question - the Stereotype and Colonial Discourse", *Screen*, 24(6), Nov.-Dec. 1983 pp 18 - 36.

Blair, Karin: "Sex and *Star Trek*", *Science Fiction Studies*, 10(3), Nov. 1983, pp292-297.

Boyd-Bowman, Susan: "*The Day After*: Representations of the Nuclear Holocaust", *Screen*, 25(4&5) July-Oct. 1984, pp71-97.

Brewer, Mária Minchin: "Surviving Fictions: Gender and Difference in Postmodern and Postnuclear Narrative", *Discourse*, 9, Spring-Summer 1987, pp37-52.

British Board of Film Censors: *Monthly List*, August 1982.

Britton, Andrew: "Blissing Out: The Politics of Reaganite Entertainment", *Movie*, No.31/32, Winter 1986, pp1-42.

Brown, JoAnne: "Professional Language: Words that Succeed", *Radical History Review*, No. 34, Jan. 1986, pp33-51.

Bruno, Guiliana: "Ramble City: Postmodernism and *Blade Runner*", *October*, No.41, Summer 1987, pp61-74

Caputi, Jane: "Seeing Elephants: The Myths of Phallotechnology", *Feminist Studies*, 14(3), Fall 1988, pp487-524.

Clarke, Arthur C.: "Star Wars and Star Peace", *Interdisciplinary Science Reviews*, 12(3), Sept. 1987, pp272-277.

Clynes, Manfred E. and Nathan S. Kline: "Cyborgs and space", *Astronautics,* September, 1960, p26-27 & 74-77.

Cockerell, Michael: "Debating Staw Wars in rhymes and rainbows", *The Listener*, V. 115. No 2949, 27 February 1986, pp7-8,12.

Cohn, Carol: "Sex and Death in the Rational World of the Defense Intellectuals", *Signs*, 12(4), Summer 1987, pp687-718.

Cranny-Francis, Anne: "Sexuality and Sex-Role Stereotyping in *Star Trek*", *Science Fiction Studies*, 12(3), Nov. 1985, pp274-284.

Creed, Barbara: "Horror and the Monstrous-Feminine: An Imaginary Abjection", *Screen*, 27(1), Jan-Feb 1986, pp44-70. Reprinted in James Donald (ed.) *Fantasy and the Cinema*, London, BFI Publishing, 1989.

--------: "From Here to Modernity: Feminism and Postmodernism", *Screen*, 28(2), Spring 1987, pp47-67.

Curry, Michael: "Beyond Nuclear Winter: On the Limitations of Science in Political Debate", *Antipode*, 18(3), Dec. 1986, pp244-267.

Dator, Jim : "What do 'You' do when your robot bows as your clone enters holographic MTV?", *Futures*, 21(4), August 1989, pp361-365.

Derrida, Jacques: "No Apocalypse, Not Now (full speed ahead, 7 missiles, 7 missives), *Diacritics*, 14(2), Summer 1984, pp20-31

Dunkley, Chris: "Langham Diary", *The Listener*, Vol.110, No.2834, 10 November 1983, p24

Edge, David : "Technological Metaphor and Social Control", *New Literary*

History, 6(1), 1974-5, pp135-147.

Eisenberg, Adam and Don Shay: "Jupiter Revisited - The Odyssey of *2010* ", *Cinefex*, 20, January 1985. pp4-67.

Elshtain, Jean Bethke: "Reflections on War and Political Discourse: Realism, Just War and Feminism in a Nuclear Age", *Political Theory*, 13(1), Feb.1985, pp39-57.

Ferguson, Frances: "The Nuclear Sublime", *Diacritics*, 14(2), Summer 1984, pp4-10.

Filkin, David: "Science and the Media", Letter to *The Listener,* Vol.111, No.2854, 19 April 1984. p20

Fisher, Bob: "Director Leonard Nimoy focuses on *Star Trek III*", *On Location*, 7(2), April 1984, pp34-40.

Foley, Theresa: "Commercial Space Shows Long-term Promise Despite Early Early Setbacks", *Aviation Week and Space Technology,*130(12), 20 March 1989, p118-9.

Glass, Fred: "The 'New Bad Future': *Robocop* and the 1980s' Sci-Fi Films", *Science as Culture*, No. 5, 1989, pp7-49.

Gordon, Andrew: "Star Wars: A Myth for Our Time", *Literature/Film Quarterly*, 6(4), Fall 1978, pp314-326.

Greimas, A.J. and F. Rastier: "The Interaction of Semiotic Constraints", *Yale French Studies*, No 41, 1968, pp86 - 105.

Hafner, Donald L.: "Assessing the President's Vision: The Fletcher, Miller and Hoffman Panels", *Daedulus*, 114(2), Spring 1985, pp91-107.

Hall, Stuart: "Signification, Representation, Ideology: Althusser and the Post-structuralist Debates", *Critical Studies in Mass Communications*, 2(2), June 1985, pp91-114.

Haraway, Donna: "A Manifesto for Cyborgs", *Socialist Review*, Vol. 80, 1985, pp65-107.

--------: "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective", *Feminist Studies*, 14(3), Fall 1988, pp575-599.

Heath, Stephen: "Difference", *Screen*, 19(3), Autumn 1978, pp50-112

Hebdige, Dick: "After the Masses", *Marxism Today*, 33(1), Jan. 1989, pp48-53.

Herken, Gregg: "The earthly origins of Star Wars", *Bulletin of the Atomic Scientists*, 43(8), Oct. 1987, pp20-28.

Humphrey, Nicholas: "Four Minutes to Midnight", The Third Bronowski Memorial Lecture, *The Listener*, Vol.106, No..2833, 29 October 1981,

pp493-499.

Jameson, Fredric: "The Vanishing Mediator: Narrative Structure in Max Weber", *Working Papers in Cultural Studies*, 5, Spring 1974, pp111-149. p127

--------: "Progress Versus Utopia: or, Can We Imagine the Future?", *Science Fiction Studies*, 9(2), July 1982, pp147-158.

--------: "Postmodernism, or The Cultural Logic of Late Capitalism", *New Left Review*, No. 146, July-Aug. 1984, pp53-92.

--------: "Science Fiction as a Spatial Genre: Generic Discontinuities and the problem of figuration in Vonda McIntyre's *The Exile Waiting*", *Science Fiction Studies*, 14(1), March 1987, pp44-59.

--------: "On Habits of the Heart", *South Atlantic Quarterly*, 86(4), Fall 1987, pp545-565.

--------: "Nostalgia for the Present", *South Atlantic Quarterly*, 88(2), Spring, 1989, pp517-537.

Jaroff, Leon: "Fighting the Biotech Wars" and "The Peripatetic Crusader", *Time*, 127(16), 21 April 1986, pp80-82.

Karpf, Anne: "Shibboleths and Ships in Bottles", *The Listener*, V.111, No.2851, 29 March 1984. p9

Kellner, Douglas, Flo Leibowitz and Michael Ryan: "*Blade Runner*: A Diagnostic Critique", *Jumpcut*, Vol 29, Feb. 1984, pp6-8.

King, Barry: "The Burden of Max Headroom", *Screen*, 30(1&2), Winter/Spring 1989, pp122 - 138.

Klein, Richard and William B. Warner: "Nuclear Coincidence and the Korean Airline Disaster" *Diacritics*, 16(1), Spring 1986, pp2-21.

Lancashire, Anne: "The *Star Wars* Saga: Comedy Versus Tragedy", *The Dalhousie Review*, 62(1), Spring 1982, pp5-13.

Lipari, Joanna: "*2010* Men", *Film Comment*, 20(6), Nov.-Dec. 1984, pp60-63.

Luckham, Peter: "Armament Culture", *Alternatives*, 10(1), Summer 1984, pp1-44 .

MacCannell, Dean: "Baltimore in the Morning . . . After: On the forms of post-nuclear leadership" , *Diacritics*, 14(2), Summer 1984, pp33-46.

McCloy, James: "Science on Television", *The Journal of the Society of Film and Television Arts Ltd.*, No 14, Winter 1963-4, pp11-13.

Mancini, Marc: "The Future Isn't What it Used to Be", *Film Comment*, 21(3), May-June 1985, pp11-15.

Manoff, Robert Karl: "Modes of War and Modes of Social Address: The Text

of SDI", *Journal of Communication*, 39(1), Winter 1989, pp59-84.

Manson, Brad: "The Last Voyage of the Starship Enterprise", *Cinefex*, No. 18, Aug. 1984, pp42-67.

Medina, Sara C.: (no title), *Time*, 23 June 1986, pp46-47

Mohanty, Chandra Talpade : "Under Western Eyes: Feminist Scholarship and Colonial Discourses", *Feminist Studies*, 14(3), Fall 1988, pp333 -358.

Montgomery, Scott L.: "The Cult of Jargon: Reflections on Language in Science", *Science as Culture*, No.6, 1989, pp42-77.

Mulvey, Laura: "Changes: Thoughts on Myth, Narrative and Historical Experience", *History Workshop Journal*, Issue 23, Spring 1987.

Murrell, Rachel Kerys: "Telling it Like it Isn't: Representations of Science in *Tomorrow's World*", *Theory, Culture and Society*, 4(1), 1987 , pp89-106.

Naureckas, Jim: "*Aliens*: Mother and the Teeming Hordes", *Jumpcut*, No 32, 1987, p1 & 4.

Newman, Kim: Review of *Star Trek IV: The Voyage Home* in *Monthly Film Bulletin*, V54, No. 639, April 1987, p125

Nichols, Bill: "The Work of Culture in the Age of Cybernetic Systems", *Screen*, 29(1), Winter 1988, pp22-46.

Payne, Keith and Colin S. Gray: "Nuclear Policy and the Defense Transition", *Foreign Policy*, 62(4), Spring 1984, pp820-842.

Peel, John: "Twenty Years of *Star Trek*", *Starburst*, 9(5), Jan 1987, pp48-52.

Pignon, Dominique: "The Strategic Defense Initiative and Europe", *Telos*, No. 67, Spring 1986, pp45-56.

Plantinga, Carl: "Defining Documentary: Fiction, Non-fiction and Projected Worlds", *Persistence of Vision*, No.5, Spring 1987, pp44-54.

Poole, Mike: "The Cult of the Generalist: British Television Criticism 1936-1983", *Screen*, 25(2), March-April 1984, pp41-61.

Rajchman, John: "Foucault's Art of Seeing", *October*, No 44, Spring 1988, pp89-117.

Recer, Paul: "*Star Wars* Weapons May Come True", *US News and World Report*, XCI(40), 27 July 1981, pp46-48.

Robu, Cornel: "A Key to Science Fiction: the Sublime", *Foundation*, No. 42, Spring 1988, pp21-36.

Rubin, David M. and Constance Cummings: "Nuclear War and Its Consequences on Television News", *Journal of Communications*, 39(1), Winter 1989, pp39-58.

Sammons, Todd H.: "*Return of the Jedi*: Epic Graffiti", *Science Fiction*

Studies, 14(3), Nov.1987, pp355-371

Schwenger, Peter: "Writing the Unthinkable", *Critical Inquiry*, 13(1), Autumn, 1986, pp33-48.

Shay, Jody Duncan: "Humpback to the Future", *Cinefex*, no.29, Feb. 1987, pp4-31.

Siegel, Mark: "Science-Fiction Characterization and TV's Battle for the Stars", *Science Fiction Studies*, 7(3), 1980, pp270-277.

Silverstone, Roger: "Let Us then Return to the Murmuring of Everyday Practices: A Note on Michel de Certeau, Television and Everyday Life", *Theory, Culture and Society*, 6(1), Feb. 1989, pp77-94.

Sinclair, Pat: "Screen Science", *The Listener*, V.111, No.2852, 5 April 1984. p32

Smith, Jeff: "Reagan, Star Wars and American Culture", *Bulletin of the Atomic Scientists*, 43(1), Jan/Feb 1987, pp19-25.

Smuszkiewicz, Antoni: "Props and their Function in Science Fiction", *Science Fiction Studies*, 14(2), July 1987, pp222-229.

Sofia, Zoe: "Exterminating Fetusues: Abortion, Disarmament and the Sexo-semiotics of Extraterrestrialism", *Diacritics* 14(2), Summer 1984, pp47-59.

Sojka, Gregory S.: "The Astronaut: The American Hero with "The Right Stuff"", *Journal of American Culture*, 7(1&2), Spring-Summer 1984, pp118-121.

Sontag, Susan: "AIDS and Its Metaphors", *The New York Review of Books*, 35(16), 27 October 1988, pp89-99.

Strick, Philip: "Future Movies: Reading the Signs (Part 1): A Passion for Mandroids", *Films and Filming*, No.366, March 1985, pp7-10.

--------: "Future Movies: Reading the Signs. (Part 3): Range-Riders of the Nuclear Plains", *Films and Filming*, No. 368, May 1985, pp7-9

Suvin, Darko: "On what is and is not an SF Narration", *Science Fiction Studies*, Part1, March 1978 cited in Patrick Parrinder: *Science Fiction: Its Criticism and Teaching*, London, Methuen, 1980.

Thompson, E.P.: "Agendas for Radical History", *Radical History Review*, No.36, 1986, pp26-45.

Tyrell, Wm. Blake: "*Star Trek's* Myth of Science", *Journal of American Culture*, 2(2), Summer 1979, pp288-296.

Vaughan, Chris: "White House demands probe into NASA", *New Scientist*, No. 1726, 21 July 1990, p18.

Watts, Susan: "Making Sense of the Genome's Secrets", *New Scientist*, V. 127, No. 1728, 4 August 1990, pp37-41.

Wollen, Peter: "Cinema/Americanism/The Robot", *New Formations*, No. 8, Summer, 1989, pp7-34.

Woolley, Benjamin: "Apolitical Science", *The Listener*, Vol.111, No.3035, 29 October 1987. p34

(Editorial): "Nuclear Criticism", *Diacritics*, 14(2), Summer 1984. p2

(Editorial): - - - - *Bulletin of the Atomic Scientists*, 44(1), Jan./Feb. 1988. p3.

(Editorial): "Ten Minutes to Midnight", *Bulletin of the Atomic Scientists*, 46(3), April 1990, p3.

- - - - "Tomorrow's Animals" *The Economist*, V.304, No.7511, 15 August 1987, p11-12

NEWSPAPERS

Amis, Martin: "Apocalypse 2000", *The Observer*, 31 January 1988. p27

Appleyard, Bryan: "The Bomb's just the beginning", *The Times*, 14 September 1989, p11

Ashford, Nicholas: "Reagan to propose missile compromise", *The Times*, 30 March 1981, p1

Barker, Dennis: "Downing Street asks for tape of TV play about US troops", *Guardian*, 15 March 1988, p3.

Beeston, Nicholas: "Bush unveils new space era for the 21st century" *The Times*, 21 July 1989, p1,22.

Booth, Mick: "The perils of selling space to the masses", *The Guardian*, 29 June 1990, p31

Booth, Nicholas: "Tintin's rocket finally set for blast-off", *The Observer*, 9 July 1989, p32.

--------: "When can't do, won't do", *The Observer*, 8 July 1990, p62.

Broad, William J.: "Science Facts Help Propel Science Fiction in the Film *2010*", *New York Times*, 2 February 1984 p1, 17.

Brown, Paul: "Rising water threatens buildings" *Guardian*, 3 November 1989 p2.

Bygrave, Mike: Review of *2010*, *The Guardian*, 20 December 1984, p11.

Clines, Francis X.: "Democrats Assert Reagan is Using *Star Wars* Scare to Hide Blunders", *New York Times*, 25 March 1983, pA9

Fiddick, Peter: "The Bang that left Britain shaken not stirred", *Guardian*,

11 March 1985. p13

--------: "Captain of the Starship", *The Guardian*, 25 April 1988, p25.

Hammond, Ray: "Radio Play Days", *The Guardian*, 25 May 1987, p5

Heseltine, Michael: "Why this fiction will never be fact", *Daily Express*, 9 December 1983. p5

Jones, George: "TV film reply sought", *Sunday Telegraph*, 4 December 1983 p1.

Lean, Geoffrey and Jan Sinclair: "Britain could be new Sunshine State",*The Observer,* 26 November 1989, p1.

Lewis, Anthony: "Why Reagan is Lost in Space", *The Times*, 30 March 1983, p12

Lichfield, John: "Bush gives space programme new goals", *The Independent,* 2 July 1989, p25.

Mohr, Charles: "General to Head Missile Program", *The New York Times*, 28 March 1984, pA19

Owen, Richard: "Reagan Accused of Violating Pacts", *The Times*, 25 March 1983, pp1 & 32.

Reagan, Ronald: "Speech on Military Spending and a New Defense", *New York Times*, 24 March 1983, pA20

Safire, William: "Acronym Sought", *The New York Times Magazine*, 24 February 1985

--------: "New Name for 'Star Wars' ", *The New York Times Magazine*, 24 March 1985, Section 6, Part 1, pp15-16.

Tisdall, Simon and John Rettle: "Soviet rocket to lift US satellite", *The Guardian*, 9 July 1990, p9

Tran, Mark: "Laser test succeeds in Star wars programme", *The Guardian*, 13 February 1988, p5

Vidal, John: "Eco Soundings: 20/20 Vision", *The Guardian*, 17 November 1989, p27

Walker, Martin: "New Pentagon chief slims Star Wars defence role", *The Guardian*, 29 March 1989, p8

--------: "Congress just keeps Star Wars project ticking over", *The Guardian*, 4 November 1989, p7.

White, Richard: "Bush warned Gorbachev 'no let up' on Star Wars", *The Guardian,* 14 December 1987, p6

(First Leader), *The New York Times*, 27 March 1983, p18E

"Mars Mission" *The Guardian*, 4 December 1987, p7.
"Spaceman is Seen as Man-Machine", *New York Times*, 22 May 1960, p31
"Briefing", *The New York Times*, 10 April 1984, p28A
"Top 100 All-time Rental Champions", *Variety*, 24 January 1990, p46.
"All-time Film Rental Champs", *Variety*, 11 January 1990, pp28, 52, 56, 58, 60, 64, 66, 68, 70, 72, 74.

Stuart Hall;"Centre and Periphery in the Field of Representation" , Address to the Association of Art Historians Conference, University of London, Institute of Education, 6 April 1989.

FILMS

The Abyss (James Cameron, 20th Century Fox, US, 1989)
The Adventures of Buckaroo Banzai across the Eighth Dimension (W.D. Richter, Sherwood Productions, US, 1984)
Aelita (Yakov Protazanov, Mezhraprom, USSR, 1924)
Alien (Ridley Scott, 20th Century Fox/Brandywine-Ronald Shusett Productions, UK, 1979)
Alien Nation (Graham Baker, 20th Century Fox, US, 1988)
Aliens (James Cameron, 20th Century Fox/Brandywine Productions, US, 1986)
Alphaville (Jean-Luc Godard, Chaumiane/Filmstudio, France/Italy, 1965)
Android (Aaron Lipstadt, New World Productions/Android Productions, US, 1982)
Apocalypse Now (Francis Ford Coppola, Omni Zoetrope, US, 1979)
Back to the Future (Robert Zemakis, Universal/Amblin Entertainment, US, 1985)
Barbarella (Roger Vadim, Marianne Productions/Dino de Lauretiis, France/Italy, 1967)
Battlestar Galactica (Robert A Colla, Universal, US, 1978)
Battletruck [aka *Warlords of the 21st Century*] (Harley Cokliss, New World, US, 1982)
The Bed-Sitting Room (Richard Lester, Oscar Lewenstein Productions, UK, 1969)
The Beginning or the End (Norman Taurog, MGM, US, 1947)

Blade Runner (Ridley Scott, Columbia-EMI-Warner, US, 1982)
A Boy and His Dog (L.Q.Jones, Third QLJ, Inc., US, 1975)
Brazil (Terry Gilliam, Brazil Productions UK, 1985)
The Brother from Another Planet (John Sayles, A-Train Films, US, 1984)
Buck Rogers (Ford Beebe, Saul A. Goodkind, Universal, US, 1939)
Buck Rogers in the 25th Century (Daniel Haller, Universal, US, 1979)
The Chain Reaction (Ian Barry, Palm Beach Pictures, Australia, 1980)
Charly (Ralph Nelson, Selmur/Robertson Associates, US, 1968)
Cherry 2000 (Steve de Jarnatt, Pressman-Cherry 2000 Productions, US, 1986)
The China Syndrome (James Bridges, IPC Films, US, 1979)
City Beneath the Sea [aka *One Hour to Doomsday*] (Irwin Allen, Kent Productions/ Motion Pictures International, US, 1970)
The Clown and the Automaton (George Méliès, Star, France, 1897)
Close Encounters of the Third Kind (Steven Spielberg, Columbia/EMI, US, 1977/80)
Cocoon (Ron Howard, 2oth Century Fox/Zanuck Brown Productions, US, 1985)
Cocoon: The Return (Daniel Petrie, Zanuck-Brown Co for 20th Century Fox, US, 1988)
Colossus: The Forbin Project (Joseph Sargent, Universal, US, 1969)
Coma (Michael Crichton, MGM, US, 1978)
Coppelia (George Méliès, Star, France, 1900)
Dark Star (John Carpenter, Jack H. Harris Enterprises, US, 1974)
The Day After (Nicholas Meyer, ABC Motion Pictures, US, 1983/4)
The Day of the Triffids (Steve Stekley, Security Pictures, UK, 1963)
The Day the Earth Caught Fire (Val Guest, British Lion/Paramount, UK, 1961)
The Day the Earth Stood Still (Robert Wise, 20th Century Fox, US, 1951)
Demon Seed (Donald Carnell, MGM, US, 1977)
Dr. Strangelove (Stanley Kubrick, Hawk Films, UK, 1964)
Dune (David Lynch, Dino de Lauretiis Productions/Universal, US, 1984)
Electric Dreams (Steve Barron, Virgin/UA, UK, 1984)
The Empire Strikes Back (Irvin Kershner, Lucasfilm/20th Century Fox, US, 1980)
Enemy Mine (Wolfgang Petersen, Kings Road Entertainment for 20th Century Fox, US, 1985)
Escape from New York (John Carpenter, Avco Embassy/International Film Investors/Goldcrest Films International/City Films, US, 1981)

Explorers (Joe Dante, Edward S. Feldman Productions/Industrial Light & Magic, US, 1985)

E.T.: The Extra Terrestrial (Steven Spielberg, Universal, US, 1982)

Fahrenheit 451 (François Truffaut, Anglo Enterprise/Vineyard Films, UK, 1966)

Fail Safe (Sidney Lumet, Max E. Youngstein-Sidney Lumet Productions/ Paramount US, 1964)

Fantastic Voyage (Robert Fleischer, 20th Century Fox, US, 1966)

Five (Arch Oboler, Lobo Productions, US, 1951)

Flash Gordon (Michael Hodges, Starling Pictures, UK, 1980)

Forbidden Planet (Fred Wilcox, MGM, US, 1956)

Frankenstein (Searle Dawley, Edison, US, 1910)

Frankenstein (John Whale, Universal, US, 1931)

Die Frau im Mond/The Woman in the Moon (Fritz Lang, Fritz Lang Film/UFA, Germany, 1929)

Friendship's Death (Peter Wollen, Modelmark, UK, 1987)

Futureworld (Richard T. Heffron, Aubrey Co./Paul N. Lazarus III/AIP, US, 1976)

Ghosts of the Civil Dead (John Hillcoat, Correctional Services, Australia, 1988)

The Handmaid's Tale (USA/Germany, Volker Schlöndorff, Cinecom Entertainment Group/Bioskop-Film, 1990)

Heart Beeps (Allan Arkush, Universal, US, 1981)

The Hidden (Jack Shoulder, Robert Shaye Productions, USA, 1987)

Highlander (Russell Mulcahy, Columbia-Cannon-Warner, UK, 1986)

Highlander II (Russell Mulcahy, Davis-Panzer, US, 1990)

Invasion of the Bodysnatchers (Don Siegel, Alled Artists, US, 1956)

Invasion of the Bodysnatchers (Phillip Kaufman, Solofilm Co., US, 1978)

La Jetée (Chris Marker, Argos Films, France, 1962)

The Journey (Peter Watkins, Skyworks Charitable Foundation/Peter Watkins/Film for Fred/The Swedish Peace and Arbitration Society/Cinergy Films, UK, 1987)

Krull (Peter Yates, Columbia/Ted Mann-Ron Silverman Production/Barclays Industrial Mercantile Finance Ltd., UK, 1983)

The Last Starfighter (Nick Castle, Lorimar/Universal, US, 1984)

Liquid Sky (Slava Tsukerman, Z Films Inc., US, 1982)

Logan's Run (Michael Anderson, MGM, US, 1976)

Longtime Companion (Norman Rene, Companion Productions Inc., US,

1990)
Looker (Michael Crichton, Ladd Co., US, 1981)
Mad Max [aka*The Road Warrior*] (George Miller, Mad Max Pty., Australia, 1979)
Mad Max II (George Miller, Kennedy Miller Entertainment, Australia, 1981)
Mad Max: Beyond Thunderdome (George Miller, Kennedy-Miller Productions, Australia, 1985)
Making Mr Right (Susan Siedelman, Orion, US, 1987)
The Man Who Fell to Earth (Nicholas Roeg, British Lion, UK, 1976)
Metropolis (Fritz Lang, UFA, Germany, 1926)
Millenium (Michael Anderson, The First Millenium Partnership, US, 1989)
Moontrap (Robert Dyke, Magic Films, US, 1989)
The Motor Valet (Arthur Cooper, Alpha Trading Co., UK, 1906)
Murder in the Air (Lewis Seiler, Warner Bros.,US, 1940)
Night of the Comet (Thom Eberhart, Atlantic 9000, US, 1984)
Nineteen Eighty-Four (Michael Radford, Umbrella-Rosenbloom/Virgin Films, UK, 1984)
No Blade of Grass (Cornell Wilde, MGM, UK, 1970)
On the Beach (Stanley Kramer, Lomitas for United Artists, US, 1959)
The Original (Jerome Diamant-Berger, Les Productions Belles Rives, France, 1986)
Outland (Peter Hyams, Ladd Co., UK, 1981)
Panic in Year Zero (Ray Milland, Lou Rusoff-Arnold Houghland, US, 1962)
Peggy Sue got Married (Francis Coppola, Tri-Star-Delphi IV @ V, US, 1986)
Pisma Myortvovo Chelovyeka/Letters from a Dead Man (Konstantin Lopushansky, Lenfilm, USSR, 1986)
Planet of the Apes (Franklin J. Schaffner, APJAC, US, 1968)
Beneath the Planet of the Apes (Ted Post, APJAC, US, 1969)
Escape from the Planet of the Apes (Don Taylor, APJAC, US, 1971)
Conquest of the Planet of the Planet of the Apes (J. Lee Thompson, APJAC/ 20th Century Fox, US, 1972)
Battle of the Planet of the Apes (J. Lee Thompson, APJAC, USA, 1973)
Quatermass and the Pit (Roy Ward Baker, Hammer, UK, 1967)
The Quiet Earth (Geoff Murphy, Cinepro/Pillsbury Films, NZ, 1985)
Raiders of the Lost Ark (Steven Spielberg, Paramount/Lucasfilm, US, 1981)
Red Dawn (John Milius, Valkyrie for MGM/UA, US, 1984)
Repo Man (USA, Alex Cox, 1984, Edge City Productions)

Return of the Jedi (Richard Marquand, Lucasfilm, US, 1983)
Robocop (Paul Verhoeven, Orion Pictures, US, 1987)
Runaway (Michael Crichton, Tri-Star/Delphi Productions, US, 1984)
The Running Man (Paul Michael Glaser, Taft Entertainment/Keith Barish Productions, US, 1987)
Saturn 3 (Stanley Donen, Transcontinental Film Productions, UK, 1980)
Short Circuit (John Badham, Turman-Foster, US, 1986)
Silent Running (Douglas Trumbull, Universal/Michael Gruskoff Productions/Douglas Trumbull Producations,US, 1971)
Slaughterhouse 5 (George Roy Hill, Universal/Vanadas, US, 1972)
Sleeper (Woody Allen, Jack Rollins and Charles Joffe Productions, US, 1973)
Slipstream (Steven M. Lisberger, Entertainment Film Productions, US, 1989)
Solaris (Andrei Tarkovsky, Mosfilm, USSR, 1971)
Somewhere in Time (Jeannot Swarc, Universal/Rastar, US, 1980)
Soylent Green (Richard Fleischer, MGM, US, 1973)
Spacehunter: Adventures in the Forbidden Zone (Lamont Johnson, Columbia/Delphi Productions, US, 1983)
Space Raiders (Roger Corman, New World/Millenium Productions, US, 1983)
Stalker (Andrei Tarkovsky, Mosfilm, USSR, 1979)
Star Trek: The Motion Picture (Robert Wise, Paramount, US, 1979)
Star Trek II: The Wrath of Khan (Nicholas Meyer, Paramount, US, 1982)
Star Trek III The Search for Spock (Leonard Nimoy, Paramount/Cinema Group Venture, US, 1984)
Star Trek IV: The Voyage Home (Leonard Nimoy, Paramount, US, 1986)
Star Trek V: The Final Frontier (William Shatner, Paramount, US, 1989)
Star Wars (George Lucas, Lucasfilm/20th Century Fox, US, 1977)
Starman (John Carpenter, Columbia/Delphi Productions II, US, 1984)
The Stepford Wives (Bryan Forbes, Fadsin Cinema Associates, US, 1975)
Superman IV: The Quest for Peace (Richard Lester, Columbia-Cannon-Warner, US, 1988)
The Terminator (James Cameron, Cinema 84/Pacific Western Productions, US, 1984)
Testament (Lynne Littman, Entertainment Events, US, 1983)
They Live (John Carpenter, US, 1988)
Things to Come (William Cameron Menzies, London Film Productions, UK, 1936)

THX-1138 (George Lucas, American Zoetrope, US, 1970)
Time and Judgement (Menelik Shabazz, Ceddo Film and Video Workshop, UK, 1988)
Time Bandits (Terry Gilliam, Handmade Films, UK, 1981)
A Trip to the Moon (George Méliès, Star/Lubin, France, 1898)
Tron (Steven M. Lisberger, Walt Disney, US, 1982)
Village of the Damned (Wolf Rilla, MGM, UK, 1960)
The War Game (Peter Watkins, BBC, UK, 1965)
WarGames (John Badham, MGM/UA Entertainment, USA, 1983)
Westworld (Michael Crichton, MGM, US, 1973)
When the Wind Blows (Jimmy Murakami, Meltdown, UK, 1986)
The World, the Flesh and the Devil (Ranald MacDougall, Sol C. Siegel/Harbel Productions, US, 1959)
Zardoz (John Boorman, John Boorman Productions/20th Century Fox, UK, 1973)
Zero Population Growth [aka *Z.P.G.*] (Michael Campus, Sagittarius, US, 1971)
2001: A Space Odyssey (Stanley Kubrick, MGM, US, 1968)
2010 (Peter Hyams, MGM/UA, USA, 1984)

TELEVISION PROGRAMMES

Specific episodes of non-fiction programmes

Eleventh Hour "The Soft Cell" (C4, tx. 11 January 1988)
Equinox "A Short History of the Future: The City" (C4, tx. 21 August 1986)
"A Short History of the Future: The Spaceship" (C4, tx. 28 August 1986)
"Pioneers of the Future" (C4, tx. 6 November 1986)
"Mission to Mars" (C4, tx. 23 July 1987)
"Anything You Can Do . . ." (C4, tx. 8 October 1987)
"Command and Control" (C4, tx. 22 October 1987)
"Chaos" (C4, tx. 20 November 1988)
Mission Juno: Astronaut Wanted, No Experience Necessary (ITV, tx. 28 December 1989)
The Money Programme (BBC2, tx. 12 November 1989)
Nagasaki - Return Journey (BBC1, tx. 29 July 1985)
On the Eighth Day (BBC2, 24 September 1984)

Open Space (BBC2, tx 15 July 1987)
Panorama "The President's Star Warriors" (BBC1, tx. 12 January 1987)
Q.E.D "A Guide to Armageddon" (BBC1, tx. 1977)
Spitting Image (ITV, episodes transmitted mid 1989)
Time on Our Hands (BBC, first transmitted 1963, reframed 1988)
Tomorrow's World (BBC1, October 1986 - December 1989)
Tomorrow's World "Greenhouse Special" (BBC1, tx. 31 January 1989)
Welcome to My World "The Forgery" (BBC1 tx. 8 November 1987)

Non-fiction programmes referred to in general

Antenna (BBC2, 1987 -)
Brass Tacks (BBC2, 1977 - 1988)
Equinox (C4, 1986 -)
Horizon (BBC, 1963 -)
Q.E.D. (1982 -)
Tomorrow's World (BBC, 1965 -)
Welcome to My World (BBC1, 11 October - 15 November 1987)

Specific fictional programmes (serials, single episodes or one-offs)

Airbase (BBC1, tx. 1 March 1988)
The Avengers "Cybernauts" (ITV, tx. 28 March 1966)
The Day After (US, ABC, tx. 20 November 1983; UK, ITV, tx 10 December 1983)
First Born (BBC1, tx 30 October - 13 November 1988)
Murder on the Moon (ITV, tx. 26 August 1989)
The Old Men at the Zoo (BBC2, tx. 15 September 1983)
Play for Today "Z for Zachariah" (BBC1, tx. 28 February 1984)
"Stronger than the Sun" (BBC1, tx 18 October 1977)
Red Dwarf "Kryten" (BBC2, tx. 6 September 1988)
Star Cops "This Can to be Opened in a Million Years" (BBC2, 3 August 1987)
Star Trek "The City on the Edge of Forever" (Ist US tx. 6 April 1967)
"The Apple" (1st US tx. 13 October 1967)
"All Our Yesterdays" (Ist US tx. 14 March 1969)
Threads (BBC2, tx. 23 September 1984)
The War Game (BBC2, tx. 31 July 1985)

Play on One "Yellowbacks" (BBC1, tx. 30 August 1991)

Series referred to in general

The Avengers (ITV, 1961-64; 1966-69)
Battlestar Galactica (US, 1978-79)
The Bionic Woman (US, 1976-78)
Blake's 7 (BBC, 1978 - 1981)
Buck Rogers in the 25th Century (US,1979-81)
Doomwatch (BBC, 1970-72)
Dr. Who (BBC, 1963-)
Edge of Darkness (BBC, 1985)
The Hitchhiker's Guide to the Galaxy (BBC, 1981)
Logan's Run (US, 1977-1978)
Lost in Space (US, 1965-68)
The Man From Atlantis (US, 1977-78)
The Man from UNCLE (US, 1964-68)
The Max Headroom Show
Planet of the Apes (US, 1974)
The Prisoner (ITV, 1968)
Red Dwarf (BBC, 1988-90)
Star Cops (BBC, 1987)
Star Test (C4, 1989)
Star Trek (US, 1966-69)
Star Trek: The Next Generation (US, 1987-)
The Survivors (BBC, 1974-77)
The $6 Million Man (US, 1973-78)